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TOWARD UNDERSTANDING PUBLIC PROFESSIONAL COMMUNICATION ABOUT WILDLAND FIRE AND FUELS MANAGEMENT IN COLORADO'S FRONT RANGE

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FINAL REPORT

Toward Understanding Public-Professional Communication about Wildland Fire and Fuels Management in Colorado's Front Range

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Executive Summary

The research question addressed in the progress report asked how public understandings of fuels management compare to those of professional experts. Attached are two journal manuscripts and a summary of our observations and analyses of group interviews into five themes.

Theme I: Increased awareness without self-organized action

Some professional groups that we interviewed recognize that public awareness is high and wildfire and fuels have become salient issues in the Front Range. Professionals do not understand why increased awareness has not translated into more action on-the-ground to implement fuels reduction projects.

- *Changing attitudes and behaviors* by educating and dispersing information remains a prevalent mind-set, but by itself this strategic definition of the problem is inadequate for building the capacity in interface communities that is necessary to organize, fund, and start fuels reduction projects.

Some residents said that they had changed to metal roofs in years past—they have Fire Wise and defensible space information and can readily repeat it, but often seemed to lack the organization to get projects funded and underway. Residents in the interface often know what to do and why but not how to take action.

A barrier to successful mobilization was identified for large-scale fuels reduction projects that require self-organization.

- Mitigation is more likely to happen and easier to undertake if decision-making and action come from a single like-minded entity, but all the different people who own the trees across the landscape can't come to an agreement. Like-minded action takes substantial time to develop in communities as they build relationships and capabilities.

- One barrier to collaboration is that some interface residents often are interested in being alone in the forest, and they are not *yet* trusting of collaboration and group mobilization.

A community's ability to mitigate wildfire risks does not depend on how much information they have received or for how long they have been exposed. The readiness of a community to mobilize and begin fuel reduction projects may often depend on how long they have been talking about the issue between themselves and outside partners.

- **IMPLICATION**: Across the Front Range, interface communities are at different levels of self-organization. One of the first steps for professionals and citizens working on community-level fuels reduction projects is to identify a community's level of self-organization and readiness to mobilize. Have they begun to establish relationships of trust or not?

Theme II: Differences of scale

Different definitions of the scale of the wildfire and fuels management issue emerged for professional and public stakeholders.

- Wildfire and fuels management in Colorado's Front Range has been framed by some professionals as a *landscape level problem* requiring a *cultural shift* in thinking about forest conditions *over the long-term*.

Residents of Front Range interface communities that we spoke to are aware of local threats from wildfire. Large portions of conversations between residents focus on public safety and evacuation during fire events. Interface residents are concerned with the local situation and not necessarily the broad region of the Front Range.

- Interface residents told stories of wildfires, interface house fires, and evacuations that they had experienced. An *evacuation-suppression-public safety* mind-set was evident in the dialog, including how to evacuate livestock and pets and what to do about neighbors who are not home during a fire. Residents spoke of organizing phone trees to facilitate evacuations. Communications during a fire and getting up-to-date information about the status of the fire are important.

Some residents are aware of broader ways of thinking about the problem in terms of forest health. Some residents recognize that landscape restoration would entail an effort beyond individual homeowners and communities.

- One barrier is that there are not enough community-level forestry professionals available to engage and help organize the many communities in the region.

IMPLICATION: Professionals and publics need to continue to seriously discuss and perhaps come to some level of consensus over what is actually at risk. Are Front Range interface *communities* at risk from wildfire or is *the region* of the Front Range at risk? The differing perspectives affect planning for action differently. A community-level perspective suggests a bottom-up approach while a regional perspective implies a top-down approach.

Theme III: What does forest health mean for fuels reduction?

We interviewed conservation groups and agency foresters concerned with forest conditions. Some professional ecologists and project managers that we interviewed think that the fuels issue in the Front Range provides an opportunity to get people talking about conservation. The interface fire issue "requires agencies to work together and to communicate like they never have before." The Front Range Fuels Treatment Partnership (FRFTP) facilitates cross-boundary relationship building.

- But does a view of wildfire in the interface as a catalyst for conservation imply a *forest health and restoration definition* of the problem? Some agency professionals and some conservation-minded NGO professionals define the issue in terms of long-term forest health and restoration of fire dependent ecosystems.

- Under a forest health definition, success might be defined as the longevity of "healthy Front Range forest conditions" and high levels of biodiversity. The problem with these criteria for success is that they have multiple and changing definitions on which publics and professionals do not consistently agree.

Landscape-level approaches to fuels reduction may resonate with some residents who own large expanses in the interface. Perhaps some large landowners who are interested in improving habitat for preferred wildlife and who are intimately familiar with large tracts of land because of heritages in agriculture or forestry, share professional definitions of the issue such as improving optimal, viable, or "healthy" forest conditions.

Interface residents that we interviewed were small landowners and tended not to frame the issue in terms of forest health and landscape restoration. We recorded residents discussing local issues of safety and homeowner assistance. But other small property owners in the Front Range may be interested in restoring wildlife habitat in and around their communities, for example, and therefore may think in terms similar to professional definitions of forest health in addition to public safety and defensible space.

- Both forest conditions and community protection are important to the mission of the FRFTP, but professional and public understandings often do not match regarding the relationship between restoring "healthy" conditions and reducing fuels for community protection.

IMPLICATION: Project-level professionals and citizens need to clarify where, when, and how different ways of understanding forest health and restoration can be productively integrated into fuels reduction projects. Perhaps for some large land owners and for large tracts of uninhabited public forest discussing forest conditions makes sense. However, in interface communities comprised of small properties, it makes more sense to discuss "healthy" community conditions such as feeling both safe and emotionally connected with place and life in a *wildland-human environment.*

Theme IV: Can the Front Range population coexist with wildfire?

A major aspect of the forest health frame of reference is restoring fire. Land managers would increase the use of fire as a tool, and naturally occurring wildfires that do not threaten people would be allowed to burn more often than under the strict suppression policies of the past. But some professionals involved with the issue in the Front Range are asking whether or not it is realistically feasible.

- It is highly uncertain whether people understand what coexisting with wildfire and increased levels of prescribe burning might entail.

Collaborative partnerships comprised of both private citizens and natural resource professionals were interviewed. Members discussed the relationships between renewable wood fuels, forest health, and restoration of fire dependent ecosystems, but they were not completely in agreement about how these translate into healthy forests.

Professionals working on interface fuels, including agency and NGO representatives we interviewed, acknowledge that all forests in the Front Range are not equal regarding fire frequency and intensity—thereby suggesting limitations to applying simplified standard approaches to reduce fuels across the region.

Public and professional understandings of coexisting with fire in a fire dependent ecosystem are confused when the relationship between wildfire and forest conditions is communicated in simplified messages.

- Transferring principles of wildfire learned from studying the Ponderosa pine forests of the southwestern United States to the entire Colorado Front Range presents a barrier to understanding the relationship between fuels reduction and forest conditions.

- The Front Range is ecologically and socially diverse and the outcomes of fuels management are often uncertain. Using simple and standardized messages about solutions for the interface fire and fuels problem is inappropriate. Fuels reduction projects designed for the northern Front Range counties may differ substantially from projects designed in the southern part of the region.

IMPLICATION: When discussing forest conditions with specific communities or different publics in the Front Range, professionals working in public relations should be clear with people that the forests of the Front Range are characterized by different conditions, vegetation types, and fire regimes. The one consistency that is important to communicate is that forests in this region tend to burn and that will most likely continue.

Theme V: Building relationships case-by-case over time

Examples of productive relationship building between professionals and publics were often described by project-level workers. Participants talked about regular communication and trust building. Together professionals and publics consider local desires, goals, values, economies, and local land and fire management issues. Then, these can be incorporated into mitigation projects.

This approach to collaboration is described by interview participants as long-term. Project level workers from both agencies and NGOs discussed their success stories in terms of attending homeowner's meetings every other weekend for several years.

- Today, most natural resource professionals are stationed in a central location making regular on-the-ground interaction difficult and expensive. How can professionals and publics working toward mutual understandings of fuels management in the interface build relationships of trust more efficiently?

Short of dispatching live-in researchers and extension agents similar to anthropologists who do years of participant observation in communities, professionals can target the relationships that already exist in the interface communities. To facilitate relationship building, trust, and credibility, project workers and wildfire mitigation experts can identify and harness the leaders and the groups that are presently organized.

Regular contact, interaction, and a presence of credibility are necessary in interface communities over the long-term to establish relationships. Collaboration is more effective if most of the trusted people at the discussion table live in or close to the community.

- Collaborative partnerships and coalitions are valuable for relationship building and to establish credibility for fuels reduction projects especially when some of the partners actually reside or are respected leaders in the communities.

- Partnerships and coalitions must bring their established relationships of trust and human resources to the discussion tables in local communities in order to be successful. Liaisons exist in citizen's coalitions and partnerships and can provide critical links between professional and public understandings.

IMPLICATION: Professional-public partnerships must enhance their abilities to identify and include more interface residents and community leaders in their discussions about reducing the risks of destructive wildfires in the Front Range. Those who live with fuels build up in fire-prone areas are valuable partners in that they can adapt what they learn from higher-level collaboration with professionals to fit projects in their home communities. In this way, *inclusiveness facilitates the process* of public acceptance and mobilization on-the-ground.

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As geographers have noted for years, the cultural landscape defines the physical landscape and must be taken seriously in pursuing sustainable landscape management.
Charles C. Geisler, 2000

Introduction

Problem Description

It is evident today—although admittedly, not well understood—that the wildfire issue embodies an array of competing social values, multiple stakeholder interests, and uncertain management outcomes. To complicate matters, an appreciation of forests and other wildlands and the steady growth of economic prosperity since the middle of the last century have combined to draw more people into western forests, both to recreate and to build homes (Chase, 1993; Davis, 1990). Large numbers of people now inhabit many places where wildfires were historically common. Large, high-intensity destructive fires are occurring in many interface forests that were historically prone to fires of low intensity.

The situation is exacerbated by accumulations of fuels and drought. For example, Colorado's largest wildfire in history, the Hayman Fire of 2002, occurred in an area with high levels of dry vegetation resulting from a mix of fire exclusion and several years of drought (Russell, 2003). The potential for loss of life and property is not decreasing. The National Academy of Public Administration (2004) reported that interface communities are developing faster than they are creating defensible space and faster than their local governments' capacities to regulate fire-safe development. A more complete understanding of the interface fire problem for all affected people is needed to guide new policies that reflect and integrate social, economic, and ecological needs across agency, public-private, and landscape boundaries (Dombeck and others, 2004). Together people, fuels, and wildfire present new challenges for professionals and publics working in environmental management in Colorado's Front Range.

Open two-way communication is required to formulate the policies that are needed to meet the needs of agency managers, local officials, and interface residents in their efforts to collectively manage hazardous fuels. One barrier to productive communication among numerous parties is that people hold multiple definitions of the interface, the wildfires occurring there, and fuels management. This report is organized around different ways of defining the interface fire problem. We suggest that a discussion of the issue from multiple angles, or perspectives, is appropriate to facilitate the mutual understanding required to formulate new policies in the face of a general lack of information about the outcomes of fuels management in the interface (Bormann and Kiester, 2004).

Study Purpose

Results and implications of this administrative study, once organized and integrated with the literature, are intended to meaningfully guide the Front Range Fuels Treatment Partnership[1] (FRFTP) during implementation of their long-term mission to reduce hazardous fuels in eastern Colorado—an ongoing process of interaction and two-way communication between stakeholders. The specific objectives are to (1) *understand* the nuances, ambiguities, and consistencies of the interface fire problem through review and study of recently published research and management articles, agency reports, and other documents and (2) formulate *recommendations for improving communication and collaboration* based on interviews collected from key stakeholders. The interview participants belong to professional and public groups working toward fuels reduction in Colorado's Front Range. As a case study, we focused on groups that are involved with the development and ongoing efforts of the FRFTP as collaborators in the wildland-urban interface[2] (WUI). An umbrella objective is to (3) *describe the engaged stakeholders* and how they define wildfire preparedness, outreach, and fuels management.

Guiding Research Questions

The document review and the interviews for the comprehensive study were guided by the following questions: (1) how do public understandings of fuels management compare to those of professional experts? (2) What kinds of interactions and communications between stakeholders enable collective fuels management? (3) What are the roles of media and the sciences in public-professional understanding? (4) What are appropriate ways to meet education needs in Front Range communities given multiple definitions of fuels management? (5) How can we best understand alternative, and often competing, perspectives—different ways of looking at the problem? (6) What are the barriers to and facilitators of communication, community engagement, and capacity building?

Focus of Current Report

- In this research progress report, we focus on question 1—how do public understandings of fuels management compare to those of professional experts?

- Question 5 deals with multiple frames of reference and is explored as a sub-theme of question 1 in the literature review and discussion of findings.

Work Still in Progress

- An annotated reading list is being developed to provide more details from key studies of social aspects of wildfire and fuels management in the interface. This document will be available in February 2005.
- Guiding study questions 2, 3, 4, and 6 will be addressed in the final comprehensive project report. This document will be available in March 2005.
- We are interested in discussing opportunities with the FRFTP for incorporating our study findings and insights into their existing web site to facilitate interactive learning for professionals and interface residents working on-the-ground.

Guiding Research Assumptions

Cultural definitions of land drive land use planning and management (Geisler, 2000). We assume that what people come know, accept, and eventually do about interface fuels management depends on their community relations and abilities to communicate with one another and with outside associations. People's cultural ties to land, their ways of seeing local problems, and their abilities to discuss and organize fuels projects hold more weight at the local level than public attitudes toward and broad support for fuels management strategies. The relationships between residents and between their community and the local and regional administrations represent a community's *self-organization*, abilities, and social resources on which managing the interface environment depends.

In addition to improving social and ecological knowledge and media and public information campaigns, professionals and publics need *local* interactive exchanges to facilitate reflective thinking and thoughtful give-and-take dialog to sort out the ambiguities surrounding fuels management in the interface (Shindler and Brunson, 1999; Yankelovich, 1991). Mutual understanding can be enhanced by discussing how to think about, define or frame, and reframe the problem. Then, local groups working together under a legitimate definition of the problem that was mutually derived can identify alternative actions that match local views and needs. Additionally, they can meaningfully consider the implications of alternative management actions in their communities.

Ways of Defining the Issue Found in the Literature

Changing Attitudes and Behaviors

Documenting *what* the public understands—in a psychological sense—about wildfire and fuels reduction policies has largely been addressed in social science studies of public opinion. Similar to voting, this research tells us what percentage of the public agrees and disagrees with wildfire and fuels management options. This tradition has brought to the fore the critical role of social and political information for wildfire management and decision-making. Since the 1988 western fire season that included the high-profile Yellowstone National Park fires, foresters and wildfire managers have come to realize that “modern forestry is heavily involved in educating and communicating with the public” (Manfredo and others, 1990, p. 23).

- Attention to public attitudes by researchers and forest managers has crystallized the realization that people are indeed part of forest systems, including wildfire and its management.

Attitude studies have informed education and research programs that view people as rational and mechanical consumers of information. Education is generally designed to increase knowledge and acceptance of controversial wildfire policies (Carpenter and others, 1986; Loomis and others, 2001; Neilsen and Buchanan, 1986). In other words, attitude research has underlying assumptions about persuading people to change their views and actions to bring them in line with public policy (Bright and others, 1993; Absher and Bright, 2004, Manfredo, 1992). These assumptions generally reflect linear models of behavior in which attitudes toward supporting an issue, such as fuels mitigation, are thought to directly determine how people intend to behave in the future in response to the fire and fuels problem. Using these models, educators attempt to influence behavior by altering beliefs, attitudes, and ultimately intentions to act through the provision of information to the public in the form of verbal messages that contain specific arguments targeting the consequences of supporting the policy (Bright and others, 1993).

However, there are times when attitudes do not translate into behaviors (Brunson, 1996; Manfredo, 1992). Attitudes are one of many factors that affect behaviors regarding fuels mitigation. People’s beliefs about what their family and friends think they should do regarding fuels mitigation can also affect behavior. Knowledge, past experience, and emotions associated with fuel reductions affect compliance with policies.

- Communication intended to increase knowledge and acceptance of a fuel reduction policy generally will not succeed for WUI residents who have extensive knowledge and experience with wildfire and fuels mitigation, especially if they are emotionally opposed to the policy.

- On the other hand, these efforts are met with more success with people having little or no knowledge or expertise (Roggenbuck, 1992) and initially positive attitudes toward supporting the policy (Bright and others, 1993).

Communicating with publics by transmitting information alone tends to overlook the context and ambiguity characteristic of natural resource-based social problems. To account for context, researchers have examined factors that influence acceptability and support. Certain situational factors such as how the fire started, potential for damage to private property, risk to wildlife, method of fuel reduction, knowledge of fire, and geographic location have been shown to affect public acceptance of wildfire policies and management (Brunson and Shindler, 2004; Carpenter and others, 1986; Gardner and others, 1985; Kneeshaw and others, 2004). There is growing evidence that managers should consider local situations and priorities case-by-case.

- Wildfire and fuels management in the WUI requires a model of communication other than providing information to the public because the messages sent often are not received as intended after being filtered through different frames of reference or biases (Weber and Word, 2001).

What does Living with Risks in the Interface Mean?

People move to the interface to experience living close to nature and to improve quality of life. However, nature and quality of life both mean different things to people living in different places at different times. After living in the WUI for some time, newcomers may eventually experience wildfires—the role, dynamics, and management of which are often foreign to their imported views of nature and community life that primarily developed while living in more urban and suburban settings. Until a child or a pet is killed or injured by a wild animal, a week of work is lost due to heavy snows, or a home or neighborhood burns in a wildfire, the realities of living in the interface may remain unclear and devoid of personal meaning for some residents.

Interface communities are not necessarily cohesive units that share common lines of communication and forest values (Lee, 1991). Experience with wildfire, forestry, or farming and time spent living in the interface can affect people's knowledge, preparedness, and wildfire risk perceptions in positive ways (McGee and Russell, 2003). On the other hand, research in natural hazards indicates that experience with wildfire does not consistently increase risk perception and mitigation activity (McCaffrey, 2004). The multitude of ways in which interface residents within and across communities actively respond to wildfire events, fire and fuels management, and landscape recovery programs after fires can vary dramatically depending on their history in the place and their familiarity with wildfire and forest management (Mendez and others, 2003).

- The multiple dimensions and social impacts of wildfire in the interface are just as important for study as the ecological complexities of the wildfires (Kumagai and others, 2004).

Human settlement in wildfire-prone areas presents a complicated dilemma because wildfire is physically real and dangerous to human life and property, but interface residents' knowledge of wildfire varies and their understandings of the risks exist in the context of individual and peer-group meanings that become more complicated with rising settlement. Risk assessment is complex and involves many disciplines. Slovic (1999, p. 699) argued that the danger from natural hazards is real, but the *risks* are socially defined—"risk assessment is inherently subjective and represents a blending of science and judgment with important psychological, social, cultural, and political factors."

- Many people living in the WUI may be overly optimistic about the inherent risks, and although access to information is important to increase awareness, being exposed to wildfire risk information does not always increase risk perception and preparedness for potentially destructive wildfires (Kumagai and others, 2004; McCaffrey, 2004).

Building Capacities for Fuels Reduction

Residents of western Colorado who reported that they do mitigate their WUI properties described others who do not mitigate as apathetic and irresponsible, uninformed, or simply as having a low perception of wildfire risk (Burns and others, 2003). This description most likely oversimplifies why some communities and individuals fail to reduce fuels and maintain defensible space. Fuels mitigation behaviors depend on various motives, means, opportunities, and capacities (Smith and Rebori, 2001). According to Jakes and others (2003), community preparedness for wildfire is based in a community's networks, leadership, and abilities to mobilize resources (social capital), education and skills of individual community members, (human capital), and a community's collective knowledge of and experience with fire, fuels management, and fire history in the place (cultural capital).

- Defining the issue as one of community capacity, and not problems of risk and public safety alone, focuses on the relationships, abilities, and resources of communities that are required to organize and implement fuel reductions.

Burns and his colleagues (2003) reported that community members in western Colorado often do not agree on who is responsible for taking the lead on wildfire concerns such as fuels mitigation in interface zones. Research on home ignitability suggests that interface homeowners should take primary responsibility to reduce the risk of loss by taking actions such as installing metal roofing and maintaining defensible space to ensure low levels of ignitability for their houses and immediate surrounding areas (Cohen, 2000). Agency wildfire managers, state and local government officials, and local fire departments should respond with some level of support for homeowners for mitigation to show that they are invested in the long-term interests of communities. Civic investment in communities by local governments brings communities together and enhances trust in and support for programs sponsored by the government (Glaser and others, 2002). State and county governments have established administrative means (institutional capacities) for mitigating other natural hazards, such as earth quakes in California, including limits on development, zoning, and safe building codes for home construction. Professionals and publics need to explore and develop means by which state and federal agencies can assist local governments—beyond providing funds—in establishing administrative capacity for wildfire risk management.

- The interface fire problem is one of shared responsibility, capacity building, and involvement of many organizations in addition to homeowners and land management agencies (Davis, 1990; Davis and Marker, 1987; Plevel, 1997).

Restoring Healthy Forests

Many agency managers, scientists, conservation groups, and citizens' coalitions working on the interface fire problem have moved beyond assigning responsibility to individual property owners and land management agencies. Some have framed the problem as a broader regional issue focused on long-term restoration of forests, watersheds, and fire dependent ecosystems (Dombeck and others, 2004; FRFTP, 2004).

- Defining the issue in terms of forest health fits well within the framework of adaptive ecosystem management, but may present difficulties for integrating social factors into new fuels management approaches.

What people think they know about the connections between reduction of fuels, restoring forest health, "good ecology," and the frequency of destructive high-intensity wildfires is certainly part of the public-professional understanding. However, additional uncertainties creep into this definition of the problem because the concepts of forest health and restoration have changing definitions that may never be consistently accepted by various stakeholders. For instance, how will we know when the forests are healthy once again, and by whose definition—public or professional—will we make the judgment? To what prior condition are we restoring forested landscapes? Which restorations will be acceptable and maintainable (Hull and Robertson, 2000)? For what fire regimes are we managing and for how long will we be willing to do so (Shindler and Brunson, 1999)?

Framing the WUI fire and fuels issue as one of forest health and restoration raises big questions because, in addition to holding multiple meanings for various people, the extent of wildland fire in North American landscapes continually changes as climate and vegetation patterns, habitats, and humans with their land management agencies, policies, and practices—including fire use and suppression—change through the centuries (Brown, 1999; Pyne, 2004). The complex interactions between climate, vegetation, and wildfire are expected to further shift in ways that are not completely predictable as a consequence of global climate warming (McKenzie and colleagues, 2004).

Ecological principles of forest health and restoration are important. However, coexisting with wildfire today is primarily a social problem (Dombeck and others, 2004) that requires a *process of adaptive collaboration* between public and professional stakeholders. Forest managers, ecologists, mitigation experts, and interface residents need to adapt common understandings regarding what forest health, conditions, and ecological restoration actually mean for those who live and work in interface communities.

- Before framing the interface wildfire and fuels problem as one of forest health and restoration alone, researchers, managers, and interface communities need to clarify where, when, and how competing definitions of forest health and restoration can be productively integrated into fuels reduction projects.

Building Relationships and Capacity with Adaptive Collaboration

Social acceptability[3] is a process rather than an attitude or a predictable outcome (Shindler and others, 2002; 2004). This changes the focus of the work from *what* we know and wish to influence to *why* this is so and *how* we can achieve mutual understanding about fuels policy so that we might implement legitimate management in the interface that is sustainable.

- Public acceptance of fuels management cannot be captured and controlled by managers and educators, but these professionals can participate with publics in a process of coming to common understandings.

Collaboration is a means to adequate acceptability. Collaboration has been described as identifying key partners (White, 2004) and building and sustaining interpersonal relationships. Open "two-way interactive flows of information" between public and professional participants, flexible changes based on feedback, and building respect and trust (Wondolleck and Yaffee, 2000, p. 105) characterize adaptive and collaborative relationships.

The purpose of developing collaborative relationships is to foster communication and provide opportunities for individual and group decision making, which builds capacity (Innes and Booher, 2003; Wondolleck and Yaffee, 2000). Once stakeholders understand their differing values and common interests and develop mutual relationships of trust—the why—they are enabled to make decisions to work together on projects to reduce hazardous fuels in and around their interface homes and public lands.

In collaboration, stakeholders *learn* about management options, ecological foundations of alternatives, and risks and costs of alternatives (Shindler and others, 2004). Collaboration has to be adaptive to account for mistakes during the learning process that are inevitable while building relationships of understanding. According to Castle (2002, p. 344), collaborative "efforts that result in improved understanding among groups in order to enhance inter-group decision making" are similar to sacrifices or investments at the present that facilitate the formation of *social capital* for the future.

A community's ability to accomplish fuel reductions and lower potential risks depends on social capital—the norms, relations, trust, and networks in a community that enhance its abilities to achieve social and economic well-being (Castle, 2002; Jakes and others, 2003). Collaboration sows the seeds of capacity in the productive soil of open communication.

- Capacity—the how—starts with collaborative partnerships of diverse interests such as the FRFTP Roundtable[1] and can grow from these established but dynamic relationships into communities, local governments, and regional administrations, but nothing grows without *two-way inclusive communication.*

- Collaborative policy making through partnerships is judged for success by whether or not it builds the capacity of actual interface communities to be self-organizing[4] and sustainable in their wildfire learning, preparedness, and fuel reductions (Chaskin, 2001; Innes and Booher, 2003).

Focus on Communication

Many people living in WUI communities are currently informed about wildfire risk and how it might be mitigated. But how stakeholders communicate about wildfire and fuels mitigation, both within and across their boundaries, and before, during, or after wildfires, differs from place to place, changes, and is at best partly understood. The interface fuels issue is controversial and debated by various groups at various management levels.

Many interface residents want early/often/and ongoing involvement in forest, wildfire, and fuels management, particularly when these directly affect their lives (Farnsworth and others, 2003; Wondolleck & Yaffee, 2000). Residents want to be better informed about what direct actions they can take, with whom they can work to improve conditions, and how to build better relationships with land managers (Burns and others, 2003; Edwards & Bliss, 2003; Farnsworth and others, 2003; Opio, 1999; Shelby and others, 2004; Tuler and Webler, 1999).

- Private-land owners expect open and productive communication among themselves, commercial foresters, and government agencies regarding management activities that affect safety, lifestyles, and property in the interface (Edwards & Bliss, 2003).

Resource conflicts often are rooted in a lack of effective communication and trust among stakeholder groups. The success of cross-boundary collaborative management hinges on understanding communication processes and related barriers and facilitators (Jakobsen and McLaughlin, 2004). This study focuses on communication because it is important for relationship building, stakeholder engagement, and collaborative learning for fuels projects.

Methodological Approach

To enhance public understanding and collaboration, both professionals and residents working in the interface will need to move beyond technical information reformatted and packaged to educate the public to accept and support treatment projects (Shindler and Brunson, 1999). Public acceptance of land management happens in open dialog that facilitates mutual understanding. Communication "must not only provide information but also focus on how people come to understand forest conditions and support policies for fuels reduction" (Shindler and Toman, 2003, p. 14).

- Accordingly, we designed and conducted an in-depth interview study to facilitate interactive dialog, openness, and mutual understanding. By talking to people in interviews, we built a key recommendation or prescription into the study at the beginning—talking and listening.

Key Informant Interviews

We interviewed 16 individuals representing key players working on the interface fire problem and residents of WUI communities in the Front Range. These interviews identified core dimensions of the issue including history, present state-of-knowledge, and future considerations. We directly asked these informants about what citizen and professional groups to include in the group interviews and if they might recommend additional persons to be interviewed. Key informant interviews addressed:

1. Backgrounds of interviewees (and history in/attachment to place for residents)
2. History of wildfire in the Front Range
3. Contemporary aspects of the issue
4. Future aspects, considerations, and insights
5. Informants' social networks of influence—who do they talk to about fuels management
6. Collaborative planning, communication, and decision making
7. Influence of science, education, and media

We interviewed a public relations officer with the federal forest service, a county-level wildfire specialist, two foresters with the state forest service working with private landowners in the WUI, a social scientist who studies national wildfire issues, a local recreational visitor on a Front Range national forest, a journalist who covers wildfire stories, and nine residents of interface communities. Insights learned from the informant interviews were used to formulate questions for the group interviews.

Focus Group Interviews

The group interviews focused on the broad context of the mission of the FRFTP to reduce hazardous vegetative fuels in the Front Range over the long-term. Ten group interviews were conducted to document, through discussion and group interaction, stakeholders' concerns and perceptions of wildfire and fuels management in the Front Range (Table 1).

Most interviews were conducted with previously existing groups during their regularly scheduled meetings on location and at their convenience. This allowed us to represent citizens and natural resource professionals who may not have attended an agency- or university-sponsored meeting because of time and travel constraints (Smith and McDonough, 2001). We essentially went to stakeholders who were already organized around some aspect of the interface wildfire and fuels issue in the Front Range.

Group interviews were guided conversations between participants and researchers (Mishler, 1986) about how participants defined the interface wildfire issue and any barriers or facilitators that they recognized. We followed flexible guides prepared in advance (Greenbaum, 2000) to cover our research objectives. Interviews were audio and video recorded to save the record for analyses. Interviews were moderated by one observer that recorded sessions and one facilitator that asked questions of the groups to maintain focused discussions. Facilitators used probes to explore interactions between participants. Follow-up questions were used to clarify information as needed.

Qualitative Analyses

Each interview was followed by timely transcriptions, preliminary analyses, discussions, and a process of *plowing* or incorporating what was learned *back into* our flexible research approach. In other words, important information from earlier interviews often was used to inform the question guide for the next interview. In addition to informing the development of interview guides, this adaptive process guided selection of stakeholders.

After the entire set of interviews was completed and transcribed, each text was edited and loaded into the software program Atlas.ti Version 5 for Windows for storage, indexing, and coding. Group interview transcripts were independently analyzed and coded for themes by two of the researchers. Differences and similarities resulting from these independent reviews were discussed together by the two researchers to finalize the interpretation for this report. Results are still emerging as analyses continue. A list of preliminary themes with descriptions has been developed (Appendix A).

Table 1. Stakeholders interviewed for the Front Range fuels treatment study, 2004.

Focus Group	Interest	Location[1]	N	Interview Length[2]
FRFTP1	Professional	Denver	5	14
VFD	Professional/Public	Teller	5	24
NGO1	Professional	Boulder	6	23
FRFTP2	Professional	Denver	5	14
CUSP	Professional/Public	Teller	7	10
WUI	Professional/Public	Larimer	7	27
NGO2	Professional	Denver	3	20
MEDIA	Professional/Public	Larimer	2	21
PLAINS	Public	Yuma	6	24
PPWPP	Professional/Public	Elbert	5	18
Totals	—	—	51	195

[1] Colorado city or county where focus group interview was conducted.

[2] Number of single spaced pages of interview transcript.

FRFTP1 = State and federal agency mid-level personnel working in the Front Range Fuels Treatment Partnership on collaborative planning and administration.

VFD = Volunteer fire fighters and WUI residents.

NGO1 = Conservation professionals with a non-governmental organization working on wildfire issues in the Front Range.

FRFTP2 = State and federal agency mid-level personnel working in the Front Range Fuels Treatment Partnership on public relations.

CUSP = Members of a non-profit citizen's coalition called the Coalition for the Upper South Platte Watershed Restoration.

WUI = Homeowners and full-time WUI residents including volunteer firefighters.

NGO2 = Conservation professionals with a second non-governmental organization working on interface fire issues.

MEDIA = Media journalists covering wildfires in the Front Range. One wrote for a newspaper and the other was a WUI resident and university instructor of journalism.

PLAINS = Citizens living in a farming community on the Eastern Plains near the Colorado-Nebraska border including volunteer fire fighters.

PPWPP = Members of a collaborative wildfire and fuels initiative called the Pikes Peak Wildfire Prevention Partners including volunteer firefighters and WUI community leaders.

Discussion of Study Findings

Identification of Stakeholders

People living in Colorado's Front Range are diverse with varying degrees of interest in and experience with forest management, wildfires, and fuels mitigation and differing perceptions of risk from wildfires. All are affected in some way by wildland fire. We have identified three broad categories of stakeholders for consideration when discussing people, wildfire, and fuels in Colorado:

- People that have a professional relationship with the problem
- People that have a personal relationship with the problem
- Citizens living where forest fires rarely occur such as urban and farming communities, and who may believe that they have nothing directly at stake

These broad categories are not mutually exclusive. For example, we often interviewed professionals working in education or fuels reduction projects who reside in interface communities prone to wildfire. Citizens in the rural east and Front Range cities have a personal stake in wildfire if they vacation and recreate in the forested interface zones. Several groups have been identified and included in this study and in the broader collaborative efforts of the FRFTP-sponsored Roundtable meetings (Appendix B).

Public-Professional Understandings of Fuels Management

The main research question addressed in the progress report asked how public understandings of fuels management compare to those of professional experts. We address this question with an integrated discussion of our observations and interpretations of group interviews. Excerpts from some conversations are included to clarify and support the discussion.

Theme I: Increased awareness without self-organized action[4]. Some professional groups that we interviewed recognize that public awareness is high and wildfire and fuels have become salient issues in the Front Range, but often professionals do not understand why increased awareness has not translated into more action on-the-ground to implement fuels reduction projects—why don't people mitigate after being informed?

- *Changing attitudes and behaviors* by educating and dispersing information remains a prevalent mind-set, but by itself this strategic definition of the problem is inadequate for building the capacity in interface communities that is necessary to organize, fund, and start fuels reduction projects.

Some residents said that they had changed to metal roofs in years past—they have Fire Wise and defensible space information and can readily repeat it, but often seemed to lack the organization to get projects funded and underway. As evident in the following interview excerpt, residents often know what to do and why but not how to take action:

> Resident A: ... we talked about it but ... the thing is getting to the next step—okay there's funding available. There are resources. Okay, how do we get to those, and how do we make it happen?
>
> Resident B: There is technical assistance through the state forest service.
>
> Resident A: Okay, now meaning what?
>
> Resident B: They will come out ... and they will take a look at it. They will analyze it for defensible space
>
> Resident C: Basically, they want you to have a green belt around your immediate house.
>
> Resident A: We know what it is. I know what it is. I don't need someone to put me in a database. I just don't have the resources or the money to make it happen.
>
> Resident D: ... I think that the communication chain—the information exists in pamphlets and flyers, so people know about mitigation, but the resources to necessarily do everything that needs to be done maybe is missing.

During this interview with WUI residents, a barrier to success was identified for large-scale fuels reduction projects that are also self-organized:

- Mitigation is more likely to happen and easier to undertake if decision-making and action come from a single like-minded entity, but all the different people who own the trees across the landscape can't come to an agreement.
- Like-minded action takes substantial time to develop in communities indicating a need for communities to work together, over time, toward mutual understandings, relationship building, and self-organization—the prerequisites to taking action.

However, self-organized communities working together to reduce fuels take time to develop because relationships take time. One barrier to collaboration is that some interface residents often are interested in being alone in the forest, and they are not *yet* trusting of collaboration and group mobilization. Some come together and talk during fire events and for social occasions, but many stay to themselves most other times.

> Resident E: … another thing you guys got to realize out here in the middle of nowhere is the people move here to be out in the middle of nowhere to get away from people. So to get them involved is not that easy. Look at myself. It took me five years to finally join [the volunteer fire department], and I've been passing them every day on the way to work … I didn't come out here to get involved.

An interface community's level of self-organization to mitigate wildfire risks does not depend on how much information they have received or for how long they have been receiving it. The readiness of a community to mobilize and begin fuel reduction projects more likely depends on how long they have been talking about the issue among themselves and with outside partners.

IMPLICATION: Across the Front Range, communities are at different levels of self-organization. One of the first steps for people working on community-level fuel projects is to identify a community's level of self-organization and readiness to mobilize—have they established any relationships of trust inside and/or outside of their community?

Theme II: Differences of scale. Different definitions of the scale of the wildfire and fuels management issue emerged for professional and public stakeholders. Some interviewees in professional agency and conservation non-governmental organizations (NGO) consider the interface fuels issue to be one of broad scope "Front Range-wide" not an issue at the forest level or the ranger district level.

- Wildfire and fuels management in Colorado's Front Range has been framed by some professionals as a *landscape level problem* requiring a *cultural shift* in thinking about forest conditions *over the long-term.*

Residents of Front Range WUI communities that we spoke to are aware of local threats from wildfire. Large portions of conversations between residents focus on public safety and evacuation during fire events. Interface residents are concerned with the local situation and not necessarily the broad region of the Front Range as is the case for some professionals.

- Interface residents told stories of wildfires, interface house fires, and evacuations that they had experienced. An *evacuation-suppression-public safety* mind-set was evident in the dialog, including how to evacuate livestock and pets and what to do about neighbors who are not home during a fire. Residents spoke of organizing phone trees to facilitate evacuations. Communications during a fire and getting up-to-date information about the status of the fire are important.

Some residents are familiar with a broader way of thinking about the problem similar to that of some professionals, but they recognize that landscape restoration would entail an effort beyond individual homeowners and communities:

> Resident A: And this [funding] is to reduce the risk of defending a home or ... you can't take everything away?
>
> Resident B: You know what—who are the source of all this money—the feds, what they are into is reducing the hazard of the natural fuels. The whole idea is to restore the forest to a healthy state, so that fires ...
>
> Resident A: ... You'd have to [mitigate] all over everywhere in the canyon not just around somebody's house, if that is the case?
>
> Resident B: Well, they are willing to focus early on the natural hazard areas that threaten communities. For instance, if we could (chuckles) conceivably organize everybody who owned the trees on this ridge, and have them act as a single entity—decision making as one entity—I bet that we could write a grant proposal that said, 'Let's get some mechanical thinning going on ...'
>
> Resident C: ... beetles—get all the dead beetle wood out ...
>
> Resident B: ... yeah, and then I think that there would be a reasonable shot at that. The feds think big!
>
> Resident D: Yeah, it's going to have to be a huge area to bother with making the effort to do it ...
>
> Resident B: But, they realize that so much of the hazard land is private, and they recognize that is a problem, so ... they tell these state foresters to act as a middle-man to try to facilitate this grass roots organization, but it is so very difficult for them because there are so few of those people.

- Some people living in the interface recognize disconnect in attempting to apply a broad landscape approach to address a small-scale problem. One barrier is that there are not enough community-level forestry professionals available to engage and help organize the many communities in the region.

IMPLICATION: Professionals and publics need to continue to seriously discuss and perhaps come to some level of consensus over what is actually at risk. Are Front Range interface *communities* and *homeowners* at risk from wildfire or is *the region* of the Front Range at risk? The differing perspectives affect planning for action differently. A community-level perspective suggests a bottom-up approach while a regional perspective implies a top-down approach.

Theme III: What does forest health mean for fuels reduction? We interviewed conservation groups and agency foresters concerned with forest conditions. Some professional ecologists and project managers that we interviewed think that the fuels issue in the Front Range provides an opportunity to get people talking about conservation—a catalyst. It brings folks together. The interface fire issue "requires agencies to work together and to communicate like they never have before," which facilitates cross-boundary relationship building as in the case of the FRFTP.

- Does a view of wildfire in the WUI as a catalyst for conservation imply a *forest health and restoration definition* of the problem? Some agency professionals and some conservation-minded NGO professionals define the issue in terms of long-term forest health and restoration of fire dependent ecosystems (FRFTP, 2004).

- Under a forest health definition, success might be defined as the longevity of "healthy Front Range forest conditions" and high levels of biodiversity. The problem with these criteria for success is that they have multiple and changing definitions.

In the dialog below for example, NGO members of the conservation community describe how the concept of forest health differs for residents with whom they work:

> Interviewer: Do you see the WUI public as understanding the connection between forest health and catastrophic fire? That is how it is posed ... you hear things like ... 'we have unhealthy forests and once they are healthy again, we are not going to have this problem' ...
>
> Member A: I think no. I think no. They are starting to get the idea that the forest needs to be thinned, but no, that's pretty sophisticated. They just don't want their house to burn down ...
>
> Member B: In our area, people that are living in the red zone—the WUI—tend to not be thinking about [forest health]. It is the large land owners with large forested tracts that are very involved in the very cooperative planning process. I think that they see that they have a much greater connection to the land because they have a huge amount of it ...Whereas the 45-acre tract owners—they are worried about it, but they don't see forest health as the solution.
>
> Member C: It's more of a defensible space issue ...
>
> Member B: They are thinking about sprinklers and how far away a tree should be from their house and metal roofs. They are not thinking about forest health.
>
> Member D: Is it fair to say ... that some of the large tract land owners, once engaged in the subject of what is forest health and bringing some good science to it, are pretty open to the idea are pretty enthusiastic?
>
> Member B: Absolutely, they see that a healthy forest fits every single one of their needs in terms of aesthetics, recreation, and hunting. A huge thing in that area is recreational hunting, so a healthy forest is good habitat for the game species, so everybody that has been exposed to it, they usually grab on pretty good. It is more difficult with the small land owners.

As evident in the preceding excerpt, landscape-level approaches to fuels reduction may resonate with some residents who own large expanses in the interface. Perhaps some large landowners who are interested in improving habitat for preferred wildlife and who are intimately familiar with large tracts of land because of heritages in agriculture or forestry, share professional definitions of the issue such as improving optimal, viable, or "healthy" forest conditions.

The WUI residents that we interviewed were small landowners and tended not to frame the issue in terms of forest health and landscape restoration. We recorded residents discussing local issues of safety and homeowner assistance. But other small property owners in the Front Range WUI may be interested in restoring wildlife habit in and around their communities, for example, and therefore may think in terms similar to professional definitions of forest health in addition to public safety and defensible space.

- Both forest conditions and community protection are important to the mission of the FRFTP, but professional and public understandings often do not match regarding the relationship between restoring "healthy" conditions and fuel reductions that may provide benefits by lowering risks to life and property in Front Range communities.

IMPLICATION: Project-level professionals and citizens need to clarify where, when, and how or even if different ways of understanding forest health and restoration can be productively integrated into fuels reduction projects. Perhaps for some large land owners and for large tracts of uninhabited public forest lands restoring agreed upon conditions can be applied. However, in interface communities comprised of small properties, it may make more sense to discuss "healthy" community conditions such as feeling both safe and emotionally content or pleased with life in a *wildland-human environment.*

Theme IV: Can the Front Range population coexist with wildfire? A major aspect of the forest health frame of reference is restoring fire. In the scenario, land managers would increase the use of fire as a tool, and naturally occurring wildfires that do not threaten people would be allowed to burn more often than under the strict suppression policies of the past.

But some professionals involved with the issue in the Front Range currently question the feasibility of coexisting with wildfire. It is highly uncertain whether people understand what coexisting with wildfire and increased levels of prescribe burning might entail:

> Member D: ... I'm not sure we Coloradoans really understand what getting a healthy forest entails ... [in parts of the southern United States, for example] ... they are much further ahead on this problem. They have regularly prescribed fires and those sorts of things, but it means not building in certain areas and therefore condemning people's property rights. It means lots of prescribed fire and smoke pouring out of the forests and having to deal with that—the effect on communities. It means not being able to recreate in certain areas when those things are going on. I'm not sure—you know everyone is for healthy forests, right—but I'm not sure that we can make that tangible choice at this point with what we face today and with that system that maintains what a healthy forest looks like. I'm not sure that we know what that is.

Collaborative partnerships comprised of both private citizens and natural resource professionals were interviewed. Members discussed the relationships between renewable energy, forest health, and restoration of fire dependent ecosystems, but they are not completely in agreement about how these translate into healthy forests—do we manage for fire-adapted landscapes by thinning/developing renewable fuels or will natural processes eventually maintain "healthy" fuel levels over the long-term or both?

> Member A (cautioning): I think that it is important when we do [talk about renewable energy and economic development], though, not to characterize it as too renewable. There is a lot of [fuel] out there, but the whole idea is to get rid of it. In setting up the plan for the future ...
>
> Member B: It will never be complete.

> Member A: But to say it's renewable as though we are going to build an economy on refreshing what we are trying to get rid of is a big mistake.
>
> Member B: Well *nature* does that.
>
> Member A: No, if we're managing the land right, we're restoring conditions that can then accommodate the right kind of fire—we don't *want* those fuels back.
>
> Member B: I know. I know we don't.
>
> Member C: But they're going to come … the small diameter timber is going to grow up in the absence of management, and then you're going to have a harvestable supply, that's all I'm saying.
>
> Member B: You are going to move as you are harvesting. You're constantly moving and you harvest this area, and then you're over here, and then you're over here, and by the time you get back around here, you've got more stuff to harvest.
>
> Member C: Right.
>
> Member A: No, that's what we *don't* want to happen.
>
> Member B: That's what I'm talking about when I say, 'Nature's going to do that.'
>
> Member D (agreeing with A): But B, if you're then letting prescribed fire and other techniques and natural fires that burn in an open forest that's healthy, you shouldn't have to convert—the little ones are burned off and you shouldn't—now, it's not an issue within our lifetimes. I mean, we could have 50 years worth of bio-fuels off of these forests, but …
>
> Member A: I'm not arguing with that.
>
> Member D: … but A is right. If we're doing this for the stewardship and the ecosystem, we're not going to say, 'Okay, we've cleared this, now we're not touching it for 50 years, so in 50 years we can come back in and re-harvest.' We should be doing prescribed fire and other *maintenance* techniques so once that's cleared and back to its healthy status it is *kept* healthy. So theoretically, it might be 50 years, it might be a hundred, but at some point in time we would have … if the *mission* of the Front Range Fuels Partnership is followed through … when we talked about mission driven, if you meet the mission, it is to get it back to healthy, and then keep it that way, so in that scenario you are not going to re-grow the small fuels again.
>
> Member C: You will on the private land, because I don't think the private landowner will manage, and the federal agencies haven't managed for a hundred years, I don't think the private landowners will …
>
> Member A: Then you're not solving the problem.
>
> Member D: You're not solving …
>
> Member C: … I'll say more realistic, I think, yeah, the theory is great, but I think in application, you're going to have some problems.

Professionals working on the interface fuels problem, including many agency and NGO representatives we interviewed, acknowledge that all forests in the Front Range are not equal regarding fire frequency and intensity—thereby suggesting limitations to applying simplified standard approaches to reduce fuels across the region:

> Member E: … Managers often tell people that if we make the forests healthy, then the risk to their homes is reduced. There is a disconnect there because we have this Ponderosa pine forest paradigm where we believe that once we have these widely spaced trees, we will have surface fires and that's how things are supposed to be everywhere, and clearly that's not the case. That's the case in a few Ponderosa pine systems in the south west and that paradigm has been translated to every forest. In the Front Range, we are dealing with a lot of mixed fire regimes where we are still going to get crown fires, and we are still going to see buildings burn whether the

> forests are in their historical range or not ... it is a perfect example of how we have transferred this one paradigm about this one system that is easy to understand—surface fires are easy to understand—to everywhere, and that is a problem with the way we communicate the message because it brings the science down to a simple level and it is easy to communicate that message, and it is a much more complex picture than that. It is highly variable across the whole country. I don't know how to fix that, but it is a huge problem in the Front Range that has to do with this idea of fire in the west.

Public and professional understandings of coexisting with fire in a fire dependent ecosystem are confused when the relationship between wildfire and forest conditions is communicated in over simplified terms:

> Interviewer: ... on the concept of forest health, which is sort of complex too for the public ... do they make the connection that healthier forests will mean less catastrophic fire? Is that connection made with home owner's associations and communities?
>
> Member A: It is a tough question because I'm not sure that there's any [connection] even for us ... what is a healthy forest? Scientists don't agree all the time what a healthy forest is. Healthy forests burn.
>
> Member B: It won't necessarily reduce fires ...
>
> Member A: Yeah, healthy forests burn, and it may be catastrophic from our viewpoint within the next three years—that was a catastrophic fire—over the long term, that is a healthy forest burning in the way that it is supposed to burn ... I think that one of the dangers when talking about the media and the messages and healthy forests—the danger is that the media has set up an expectation that healthy forests don't burn; that we can eradicate fire; that we will protect you and prevent fire, and that might be one of the most important missing links that isn't getting to the public—healthy forests are variable. Healthy forests look like a lot of different things and the healthiest of forests burn and some of them burn *hot* and some of them will destroy anything in their path—that doesn't mean that somebody has failed necessarily. I think that is a disconnect—the public is [hearing] 'protection from fire', 'the eradication of fire,' ...you see the words like 'prevention of fire,' and you see that in the media, and that sets it up poorly for the public.
>
> Member B: There has been a simplification of the message. It has gone from sort of the Smokey Bear prevent forest fires to some understanding of the role [of] fuels and fire suppression and forest structure, but it is now caricatured in this overly simplistic way that the only healthy forest is a *thinned* forest and that is a terrible misconception in these complex forests even in the Ponderosa pine zone, we are learning that is not how it necessarily happens.
>
> Interviewer: There is no generalizable solution?
>
> Member B: There is no board—there is no single prescription that you can apply across the landscape to produce a *healthy forest.*
>
> Member A: ... there is no place where you say, 'Oh good, we are done. Oh good, now the Front Range is safe, and our forests are *healthy.*' There is no such finish line. ... the media have set it up where—public conception has it set up that one day we will cross that finish line, and we need to work toward this identifiable goal, and it is really very vague ... even in the minds of fire experts.

- Transferring principles of wildfire learned from studying the Ponderosa pine forests of the southwestern United States to the entire Colorado Front Range presents a barrier to fuels reduction defined in broad terms of forest health and restoration.

- The Front Range is ecologically and socially diverse and the outcomes of fuels management are often uncertain, which makes the use of simple and standardized messages about solutions for the interface fire and fuels problem inappropriate. Fuels reduction projects designed for the northern Front Range counties may differ substantially from projects designed in the southern part of the region.

IMPLICATION: When discussing forest conditions with specific WUI communities or different publics in the Front Range, professionals working on fuel reduction projects and/or in public relations should be clear with people that the forests of the Front Range are characterized by different conditions, vegetation types, and fire regimes. The one consistency that is important to communicate is that forests in this region tend to burn and that will most likely continue.

Theme V: Building relationships case-by-case over time. Examples of productive relationship building between professionals and publics were often described by fuels project workers as processes of regular communication and trust building. Together professionals and publics consider local desires, goals, values, economies, and local land and fire management issues and incorporate these into mitigation projects:

> Interviewer: One thing that you have not mentioned is knowledge. Is there a lack of knowledge or do you feel that when you are out [in communities], you are getting the sense that people really know?
>
> Member A: Well that is what we are bringing to the table I think is developing knowledge. We don't have it, but we are working as best as we can to develop the knowledge. They trust us. I would say that about 90% of those land owners ... would believe what we told them because they know that we are constantly working to try to get the best available knowledge. [Together we have] developed a fire history for the area, and they are really excited about that. There are still knowledge gaps, but at least in [this place] we have been trying to fill those knowledge gaps.
>
> Member B: I think that they have been working hard to get to that point …
>
> Interviewer: … How do you not, in a sense—if they will listen to anything that you say—how do you collaborate with them? I imagine that you try. You want to listen; how do you do that when you are communicating with [land owners/communities] to see what their needs are?
>
> Member A: In the one case, a land owner … is going to do work on-the-ground based on what we tell them, they have a set of their own things—what we give them will be just another part of that—they have their wildlife goals, and they have their aesthetic goals, and we give them information on what the natural forest history would look like, then we help them work through how they can all work together.
>
> Member B: In a certain broader sense in communities … we sit at the community table, so [someone] literally once a month goes to these community meetings that are completely collaborative that are consensus based with stakeholders from the whole community sitting down together to talk mostly about fire … in all communities that we work on in Colorado on fire issues, that is the case—we have that sort of community-level group to develop consensus on fire issues.

> Member C: It is sort of the coalition of the willing for lack of a better phrase. … Everybody starts showing up, and they are interested in this. What [we do] … is walk them through a process … a process for defining a community vision for what they want to get done in their forest. It takes into account community protection and watershed protection and whatever are the goals folks have … it is similar to the process being used by other agencies and communities. It is designed to incorporate non-biodiversity goals if that makes sense. It is not a template. We just don't hand somebody the plan and say you tell me why we should do anything different.
>
> Member D: That is in our approach … You've got fire and you sort of find out here is our mandate here is your mandate or interest where do they overlap. That is where we can sort of first come together and then work out the sides I guess, and also bringing—I think that this is important—something of value, in your case information, so that kind of gets you a seat at the table in a sense. … It is important to provide some kind of value, especially if you are not prominent in that community.

This approach to collaboration is described by interview participants as long-term often taking several years. Project-level workers from both agencies and NGOs discussed their success stories in terms of attending homeowner's meetings every other weekend for five or more years.

- Today, most natural resource professionals are stationed in a central location making regular on-the-ground interaction difficult and expensive. How can professionals and publics working toward mutual understandings of fuels management in the interface build relationships of trust more efficiently?

In addition to using live-in researchers and extension agents similar to anthropologists who traditionally do years of participant observation in communities, professionals can target the relationships that already exist in the interface communities. To facilitate relationship building, trust, and credibility, projects workers and wildfire mitigation experts can identify and harness the leaders and the groups that are presently organized. In the excerpt below interviewees describe how this is working:

> Member A: … there is a group of folks there [from a NGO] involved in some science support work. Some of the opinion leaders there are fired up about it, and they probably couldn't even tell you the name of the governor let alone much about forest health, and I'm not sure that matters because the right people to make things happen are now informed and excited about it. It is just a different approach. These community coalitions—where they exist—seem to be getting some attraction … The Upper South Platte and others. It seems like a reasonable way to organize, and then that has an organic effect. Those people are members of the community and are talking to their neighbors every day and have the ability to spread the word more than some one in a forest service uniform going door-to-door. … We actually hear from agencies that there is a credibility gap—even if [an ecologist] is saying exactly what's needed for the forests, he or she is wearing a U.S. Forest Service uniform and works for the people who are largely responsible for creating the problem in the first place. …There is deep skepticism and a jaded outlook especially from groups that are national in scope … that's the value and ability of these local partnerships is speaking by proxy—it is better to have a local advocate for this thing than someone from the forest service.
>
> Member B: I think a piece of that is figuring out who in those communities within your stakeholder group is going to be the right person. It might not be the one who

> immediately comes to mind at the top or the chair person of that board or whatever because as we find out in community-based conservation, often there is someone who is much more influential for the community as a whole, and the person who appears to be in charge has a leadership role, and we find that out by living in these communities and being a part of these communities, so that's not something that you can figure out immediately, but that is clearly to me one of the reasons that we are successful in a lot of these landscapes because we work with people who are influential in the community, and that may or may not be a structured role.
>
> Interviewer: Do you just keep going back and keep talking until you finally find that person?
>
> Member A: … that is generally how it works. It is a year-long process to engage in a community so by the time you actually do something on the ground … That's a useful way to think about it. In that community, who are the major players … so chunking up the Front Range into how communities think of themselves and thinking about who the right players are. … It is just different in every community. I think it is just asking people who are focused on that community.
>
> Member B: In terms of homeowners, that will probably be really important. Figuring out—who in literally a community where people live—who's a leader? Who does everyone listen to? Who do people go to when they want an answer? It is probably not the county commissioner. It is probably the guy on the corner who has lived there for 25 years or whatever.

Regular contact, interaction, and some type of credible presence are necessary in interface communities over the long-term to establish relationships. Collaboration is more effective if most of the trusted people (including those in professional roles) at the discussion table live in or close to the community.

- Collaborative partnerships and coalitions are valuable for relationship building and to establish credibility for fuels reduction projects especially when some of the partners actually reside or are respected leaders in WUI communities.

- Partnerships and coalitions have to bring their established relationships of trust and human resources to the discussion tables in local communities in order to be successful. Liaisons exist in citizen's coalitions and local partnerships and can provide critical links between professional and public understandings.

IMPLICATION: Professional-public partnerships must enhance their abilities to identify and include more interface residents and community leaders in their discussions about reducing the risks of destructive wildfires in the Front Range. Those who live with fuels build up in fire-prone areas are valuable partners in that they can adapt understanding learned from higher-level collaboration with professionals to fit projects in their home communities. In this way, inclusiveness facilitates the process of public acceptance and mobilization on-the-ground.

Overall Preliminary Insights

Our analyses and understandings of the study results are ongoing and evolving. However, the insights herein are grounded in 18 months of data collection, preliminary study of empirical interview data, and extensive reviewing of published and unpublished studies of people and wildfire in the WUI.

- Lack of communication across jurisdictions drives conflict and misunderstanding over fuel reduction projects in WUI communities.

- The basic goals of public-professional interactions should be to build and maintain trust and credibility (Winter and others, 2004) during collaborative processes for fuels management.

- WUI residents need to know more about who is doing what in relation to fuels and wildfire management and how it affects them and their neighbors—local fuels reduction projects require large amounts of local participation and exposure.

- Consistent and trustworthy interaction and dialog between officials/agency representatives and WUI citizens overtime regarding fire and fuels management builds trust. A "good neighbor" forester, private land manager, or familiar county extension officer can be effective when available.

- Taking an isolated point of view of the interface fuels issue such as public safety, property protection, natural resource protection, forest health, or a private land problem may be less productive, in most cases, than establishing it as a problem of building community capacity and framing it as everyone's responsibility. This approach has the potential to integrate various definitions of the problem.
- Some interface communities may see their situation primarily in terms of one of these frames, for example, wildlife habitat restoration or "healthy" forests. In such a case, wildfire education professionals helping with fuels reduction projects might initially phrase their ideas for education and mitigation in terms of forest and habitat restoration to match project goals with community goals.

- If a community has come to understand their situation primarily in terms of public safety, professional project collaborators might focus on defensible space, evacuation plans, and building up resources for the local fire department.

- There is confusion in some communities about where to get financial assistance for mitigation projects and about what to do with slash from mitigation.

- The media will consistently cover the destructive and heroic nature of wildland fire and firefighters—the "real news" stories are inevitable. Government and private wildfire communication specialists must continue to forge relationships with people in media to understand how and when to best present stories about how to coexist with wildfire in the WUI.

- Proactive residents who do mitigate seem to be well studied. Case studies tend to under-represent people who do not mitigate. There may be many unrecognized barriers to mitigation and sound reasons why some people do not or cannot mitigate their properties.

Future Directions for Moving Understanding Forward

These future directions may be facilitated either by the FRFTP-Roundtable efforts, by citizens' coalitions and partnerships, or by research. Some of these bullet points will be best pursued by a combination of entities working together over the long-term.

- Current and future studies and on-the-ground project activities must remain focused on community engagement and involvement. However, communities differ with regard to their philosophical views concerning natural resources, wildfire history, and what it means to live in a WUI landscape. These affect community responses to fire, fuels management, and rehabilitation after wildfires. Thus case study and local place-based projects are critical.

- Stakeholder network maps that describe the key groups and their positions on fuels reduction, their resources and methods of operation, and potential linkages and partners could be developed as useful tools (see research question 2). It is important that maps be seen as snapshots that can be adapted as social conditions and relationships evolve.

- We know more about the people who do mitigate than the people who do not. Thus, we need to study people who do not mitigate to clarify the barriers to and facilitators of community preparedness and collaborative mitigation (see P. Champ and others' FRFTP Progress Report FY03).

- Communication and two-way responsiveness between county governments and WUI communities/home owners associations might be directly studied in the context of forest management in general and fuels reduction specifically on a case-by-case basis.

- Community capacity to engage in fuels projects is not completely understood. How do collaborative and trusting relationships form? Are there any tangible motives for mitigating? Where are the resources? Who are the best leaders? What are the roles of economic incentives and home owner insurance? Can capacity be sustained over time (see Williams, Jakes, and others' Joint Fire Science Proposal, 2004)?

- In a given community, how do newcomers to the interface (and urban-to-WUI migration in general) affect community capacity and communication?

- Communication and public relations studies above and beyond information dissemination and mass media campaigns are needed (see J. Champ's FRFTP Progress Report FY04).

- What do forest health, forest conditions, and ecological restoration actually mean to WUI residents? Where and under what conditions might these concepts be successfully integrated into collaboration and mitigation projects?

- Evaluation of fuels reduction projects and criteria for success for collaborative partnerships should focus on whether or not efforts are self-organized and sustainable—has capacity been enhanced or hindered on-the-ground for WUI communities (Innes and Booher, 2003)?

Notes

[1] The Front Range Fuels Treatment Partnership is an interagency wildland fire communications group (http://www.rockymountainwildlandfire.info/frftp.htm). It is comprised of a leadership team of upper-level administrators, a steering committee, and a public relations committee comprised of natural resource, management agency personnel from the Colorado State Forest Service, The USDA Forest Service, the USDI National Park Service, the USDA Forest Service Rocky Mountain Research Station, and the USDI Bureau of Land Management in the Front Range of Colorado. The Partnership sponsors a Roundtable with a mission to serve as a focal point for diverse stakeholder input into the Partnerships efforts to reduce wildland fire risks through sustained fuels treatment along the Colorado Front Range (FRFTP, 2004).

[2] The wildland-urban interface (WUI) has been defined as a zone where substantial human occupancy coexists with areas of flammable forest, brush, and grassland vegetation. This zone can include primary residences, vacation homes, mobile homes, commercial buildings, and outdoor recreation facilities. The principal characteristic of the interface zone is the intermixing of people, houses and developments, and natural vegetation, with an inherent risk to each from wildfire (Chase, 1993, p. 350). Over 730,000 people live in the WUI along the Front Range of Colorado with over 30,000 resident homes in the Arapaho and Roosevelt National Forests alone (FRFTP, 2002).

[3] Social acceptability has been examined using belief-attitude-behavior models from social psychology (Brunson and Shindler, 2004). According to Brunson (1996, p. 12), "acceptability is a product of cognitive judgments" that reflects a person's attitude toward conditions and management practices in the interface. We hold that the concept of social acceptability often is oversimplified when measured as the average WUI resident's mental judgment of what is acceptable fire policy or management practice. Rather we see social acceptability as a dynamic process (Shindler and others, 2004) of relationship building and coming to mutual understandings without necessarily changing core values and beliefs about land management policies.

[4] Self-organized collective action is a dimension of *community capacity*—"the interaction of human capital, organizational resources, and social capital existing within a given community that can be leveraged to solve collective problems and improve or maintain the well-being of a given community" (Chaskin, 2001, p. 295).

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Appendix A. Preliminary list of codes with descriptions that emerged from the interviews and literature for the 2004 FRFTP study.

Capacity: Participants discuss what a community is capable of doing about mitigation and wildfire; institutional capacity in the form of regulations, zoning, expertise (human capital), experience and fire history in the place (cultural capital), mobilization of physical resources (social capital), etc.

> *Barriers to mitigation/meeting the current mission of the FRFTP*: Discussion of limits on efforts to mitigate fuels and get acres treated. (This is where our task of reframing the issue or the mission of FRFTP as one of community capacity is linked to barriers.)
>
> *Community leaders*: The role of community leaders relative to mitigation. The presence of leaders is an indicator of social capital.
>
> *Community networks*: Who's talking to whom within the community about wild fire? These networks are an indicator of social capital.

Collaboration: Discussion of the collaborative process, success stories, failures, relationship building, etc. (This is closely related to the theme of trust and relationship building.)

Communication: Participants discuss interaction with the government agencies, local authorities, WUI residents, etc. about fire, framing the issue, the problem; one-way versus two-way communication.

Criteria for Success: Discussions of what they are. What should they be? Acres treated versus communities enabled to treat. How do they differ by frame of reference?

Education I: Reported exposure to any materials dealing with wild fire education-traditional efforts to inform the public and enhance understanding. Participants discuss information dissemination.

Education II: Discussions of how people learned via other ways such as living through a fire or going to a community meeting or personally speaking with an agency representative or private manager about fuels mitigation projects in their area or while participating in a collaborative group.

Forest Health/Restoration: Participants discuss the relationship between catastrophic fire and forest health. What does forest health mean to WUI residents compared to agency representatives? This is tied to our interest in multiple meanings, socially defined and debated concepts of nature, and public understandings of forest conditions and restoration.

Framing the Problem: Participants describe how they see the problem or how others see the problem. For example, people may talk about wildfire and fuels treatment projects in the WUI as issues of public safety, forest health, restoration of wildlife habitat, community capacity, or a private land problem, etc.

> *Building and creating community capacity*: Enabling public stakeholders to better manage wildfire risk. Local governments need to invest in the WUI communities to show how mitigation projects can help to improve these communities.
>
> *Communication problem*: Information processing/attitude change route to communication compared to interactive two-way strategies.

Front Range Fuels Treatment Partnership Mission, Goals, and Objectives: When the intent, mission, or the goals and objectives or the roles of the FRFTP are specifically discussed or debated by interviewees. These may be the perceptions of the group or individual and may not reflect what members of the FRFTP state.

> *Roundtable purpose*: Discussions of the purpose, objectives, strategies, etc. of the FRFTP-sponsored Roundtable meetings. This is a sub-theme of the FRFTP Mission (see FRFTP, 2004).

Funding for Mitigation: Participants debate or discuss any confusions about where to get financial resources to fund mitigation projects and what to do with the vegetation after it is mitigated; how to obtain a chipper or landfill space; how and when or if to burn slash piles after mitigating property, etc.

Government Agency Trust and Building and Sustaining Relationships: Any discussion by participants of trust, attitudes, or observations about the local, state, or federal governments' or agencies' abilities to handle the wild fire problem or complete successful mitigation projects.

At a somewhat deeper level, collaboration has been described as building and sustaining interpersonal relationships. Participants discuss efforts to build inter-stakeholder relationships such as the FRFTP Roundtable meetings or other partnerships like PPWPP. Wondolleck & Yaffee (2000, p. 162) typified this theme in a discussion of successful collaborative relationships:

> "They are honest, sincere, compassionate, committed, understanding, respectful, and caring. Over time trust is demonstrated by the individuals in the relationship. Effective collaborative partnerships recognize the need to build and sustain productive relationships between those involved and take steps to establish those linkages."

Participants discuss attributes of successful collaboration as such and any processes of relationship building or communication that foster respect, honesty, trust, etc.

Interagency Cooperation: Discussion of agency efforts to cooperate about wildfire and fuels projects in the WUI; both successes and failures.

Media: Anytime participants discuss mediated communication about fire.

Newcomer vs. Longtime Resident: Discussions about of the effects of lack of experience with the WUI environment and wildfire versus lots of experience and history with wildfire based on long-term residence in the WUI. (We may break this down further, but early on this will include year-round resident, versus remote owners who may not be around much.)

> *Cultural capacity*: Discussions of communities as traditionally tied to the land in their occupations? Are they tolerant of land management in general?

  - *Fire history*: Participants discuss the history of a community regarding wildfire; does it burn every 10 years; every summer; do they rarely have wildfires? Fire history is a dimension of cultural capacity.

One-Size-Fits-All Approach: Discussions of efforts to find simple technical solutions for the complex problem of wildfire and fuels treatments in the WUI for example, not accounting for differing worldviews, capacities, needs, or expectations of distinct communities. A prominent example is the use of standard FIREWISE home diagrams.

Understandings of Science: Anytime participants discuss or attempt to evoke science and its role in their discussion of wildfire and fuels reduction projects. Theme includes related discussions of the relationship between science and fire policy and public understanding of science. What are the limits to both social and natural science for this problem?

Appendix B. Front Range stakeholders identified in the 2004 FRFTP study.

Interest	Interviewed	Roundtable
Interface homeowners' associations	yes	
Citizen's watershed coalitions	yes	
Other wildfire prevention partnerships	yes	
Volunteer fire departments	yes	
Conservation ecologists from NGOs*	yes	yes
Federal and state agency administrators*	yes	yes
Journalists from the media	yes	
Eastern plains citizens	yes	
County, state, federal project level workers	yes	
Academic community*	yes	yes
Urban citizens		
Local government and county officials*		yes
City water boards		

Wildland fire fighters	
Public forest recreation clubs	
Forestry industry/commercial businesses*	yes
Insurance companies	
Local chambers of commerce	
Public schools	

Note: Groups marked with asterisks are broad categories of stakeholders that the FRFTP, conservation NGOs, and community partnerships have identified as key groups to initially invite to the ongoing, FRFTP-sponsored Roundtable meetings (FRFTP, 2004).

Horizontal Power, Vertical Weakness:
Enhancing the 'Circuit of Culture'

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Horizontal Power, Vertical Weakness:
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Abstract

Imagined as a way to account for a broader conceptualization of meaning, the 'circuit of culture' encourages scholars to consider the contribution of sometimes overlapping cultural processes, such as production, consumption, regulation, representation, and identity. In this article, the author considers the way the circuit prompts him to think 'horizontally' in his research. But he argues that the circuit can be augmented and improved by the recognition of deeper, 'vertical' dimensions of meaning. For instance, would it be possible to account for the researcher's own cultural processes in her/his reports? And what about those of the audience members for these reports? The author presents an example of this approach with the interpretation of a Smokey Bear advertisement. He concludes that such efforts to pull together these elements will be rewarded with more powerful, nuanced statements of the process of meaning.

Keywords

circuit of culture, consumption, identity, interpretation, meaning, production, reflexivity, regulation, representation, Smokey Bear

Horizontal Power, Vertical Weakness:
Enhancing the 'Circuit of Culture'

More than 25 years ago, in a move significant for the study of popular communication (and, for that matter, the examination of any form of human relations), Stuart Hall (1980) prompted the development of a heuristic we now call the 'circuit of culture'.[1] In this article, I will explore the contribution of this approach to research and understanding. By paying attention to the circuit's five 'moments' of culture, we are encouraged to account for a very wide (horizontal) range of experience. But I will also argue that the circuit of culture, in its present form, could be enhanced by a pair of important and attainable, dimensions. By including a sense of the researcher's reflexive interpretations, as well as recognizing the meaningful experience of audience members of the research report, we can further account, in a more complete (vertical) way, for the process of meaning.

The circuit of culture's roots can be linked to the origins of British cultural studies whose adherents sought to imagine the complex interplay of agency and determination in human experience (See Barker, 2003, p. 35, and Barker, 2004, p. 22). The earliest work centered on class (Hoggart, 1957; Williams, 1960, 1961; Thompson, 1964), but later the topics of race (Hall, 1992) and gender (Franklin, Lurg, & Stacey, 1991) figured heavily in the discussions. Brunsdon and Morley (1978) argued that, though people are limited by the meanings in the discourses to which they are exposed, they are often privy to a wide selection of discourses. Hall (1980) expanded upon this notion. Reaching back to Marx's idea of a 'circuit of capital' connecting industrial production with the circulation of commodities, Hall conceived of the cultural experience of television as being an articulation of distinct, linked moments, including, production, distribution, circulation, and reproduction. No one moment can ever be considered the ultimate source of meaning, he argued. Hall used his encoding/decoding' concept to state that the meaning the producer (or 'encoder') intends to communicate in a message may not be the meaning the consumer (or 'decoder') ascribes to that message.

Johnson (1986) took up this idea and developed it further, imagining a more detailed heuristic construct. Rather than being a theoretical representation of a reality (see discussion, p. 283), this 'circuit of culture' was intended to serve as a symbolic device—a pedagogic model—meant to help us understand the often complex, integrated nature of cultural meaning. According to Johnson's construct, one can imagine culture in terms of distinct processes, or moments. Johnson encouraged researchers to think of the inseparability, the connectedness, of these cultural moments. "Each moment depends upon the others and is indispensable to the whole," he wrote (1986, p. 284).

But there remained a critique that cultural studies scholars over-celebrated audience negotiation and opposition. Some feared that it dangerously ignored the power to control meaning inherent in the encoding of cultural texts (see Clarke, 1991; Ferguson & Golding, 1997). Due to this, as well as questions about how the model would actually be applied in real-world research (see Lewis, 1994; Taylor, Demont-Heinrich, Broadfoot, Dodge & Jian, 2002), a group of cultural scholars associated with the Open University in the United Kingdom set out to further refine the model, simultaneously publishing a series of six edited books called the "Culture, Media and Identities" series (du Gay, 1997; du Gay, Hall, Janes, Mackay, & Negus, 1997; Hall, 1997; Mackay, 1997; Thompson, 1997; Woodward, 1997).

The Open University circuit of culture advocates (see du Gay et al.'s, 1997, conception, represented by Figure 1) expanded the Johnson heuristic by presenting cultural experience in terms of *five* interrelated "processes" (p. 3), or "moments" (Hall, 1997, p. 4; Thompson, 1997, p.

3), including production, consumption, regulation, representation, and identity. Describing each of these moments in-depth is beyond the scope of this paper. A number of scholars have presented more comprehensive discussions (Curtin & Gaither, 2005, 2006; du Gay, 1997; du Gay et al., 1997; Hall, 1997; Mackay, 1997; Taylor et al., 2002; Thompson, 1997; Woodward, 1997). Very briefly, we can say that 'production' stands for all of those things having to do with the creation of many forms of goods, services, and experiences. In this way, as Taylor et al. (2002) explained, in the "design, manufacture, and distribution of a particular cultural object," the creation is "both material and cultural" (p. 617). Production takes place in relation to social and logistical constraints that may influence the way meanings are eventually encoded (see also Curtin & Gaither, 2005, p. 100).

'Consumption', according to the Open University scholars, is the moment, or cultural process, in which we "appropriate and make sense of various cultural forms in our routines in everyday settings" (Mackay, 1997, p. 1)—it is what Hall (1980) meant by the act of 'decoding'. This concept has been a symbol of cultural studies, something that has delineated it from more critical, materialist approaches to the understanding of human experience. Although some scholars have celebrated the act of consumption in terms of pleasure, poaching, and bricolage (de Certeau, 1984; Fiske, 1989), circuit of culturalists have taken a more measured approach, recognizing "a balance between creativity and constraint" (Mackay, 1997, p. 11) in the practice of everyday life, on one hand, and the limits of cultural structures (such as production, representation, and regulation) on the other.

'Regulation' stands for the attempt to codify, or control, in some way, practices related to the other processes of the circuit of culture; it is often the goal of those with the power to do so to *fix* meanings in ways they deem desirable. The term 'regulation' is rather loosely used, representing everything from quite formal, institutionally based regulation, to local norms and other limiting cultural values. Heavy thinkers such as Gramsci, Althusser, Foucault, and Habermas expended a great deal of time and energy trying to understand the role of regulation in economic, political, and social practice (see Thompson, 1997).

'Representation' is meant to stand for the process within which a particular language or other forms of symbolic systems are used to present potential meanings. A representation, often in the form of text, serves as a "shared cultural 'space'" (Hall, 1997, p. 10) from which participants in a culture may draw meanings. It is believed that the way a message is structured may influence how meanings are interpreted. These representations, or "signifying systems" (p. 5), are most successful if they come from somewhere…if they have a past. If discursive participants share enough experience with that history, they can translate meanings in similar enough ways to enable understanding.

Finally, 'identity' (or perhaps more properly, 'identi*ties'*) can be thought of as stories, "social profiles" (du Gay et al., 1997, p. 10), "types" (p. 15) that circulate throughout cultures in the processes of production, consumption, regulation, and representation. What delineates identities from more general discourses (as Foucault, 1972, and Hall, 1996b, 1997, have defined 'discourse') is the way in which individuals and groups may take up these stories and present them to others (and to themselves) as indicators of who they are, or are not (or at least who they would wish to appear to be, or not to be). And identities are not exclusively assigned to people. Any concept, including creatures, material objects, events, relationships, etc., may be associated with an identity, as in Curtin and Gaither's (2006) analysis of identities linked to the smallpox disease. We could imagine that these stories may be provided and acquired (or forced upon people) by greater society (e.g., identities associated with race, ethnicity, gender, sexuality, class, economic status, etc.), or creatively integrated into unique combinations that we might consider emerging identities. These identities may be defined by the way they overlap with other identities (see Grossberg's notion of 'fragmentation', 'hybridity', and 'border-crossing', 1996, p. 91), or, they may be made more clearly meaningful by *what they are not* (Curtin & Gaither, 2005, 2006; Derrida, 1981; du Gay et al., 1997; Grossberg, 1996; Hall, 1996a), an idea of particular interest to Open University circuit of culturalists. Curtin and Gaither (2006) explained that "identity is often constituted through difference" (p. 82—also see Hall, 1996a, p. 5, and du Gay et al., 1997, p. 17), such as the dichotomies of male/female, black/white, rich/poor, etc. Circuit of culturalists argue that powerful individuals and groups, those forces with the ability to influence perceptions of reality, can control production, consumption, regulation, and representation to the point that their preferred identities seem authentic, natural, or at least unavoidable.

As one can see, it can be difficult to characterize any cultural moment without talking about another (or sometimes all) of the others. Again, this is just the point of imagining culture in terms of interrelated processes, something the Open University scholars wished to improve upon with their own heuristic model (note how the arrows in Figure 1 link every moment to every other). They argue that to understand any one process requires an attempt to account for all of the others. In the true sense of *gestalt,* the whole is not equivalent to the sum of its parts. It is somehow *greater*, in a meaningful sort of way. We must not be preoccupied with the notion of some common starting point for meaning. The process of meaning can be associated anywhere, in any combination:

> This suggests that meaning-making processes operating in any one site are always partially dependent upon the meaning-making processes and practices operating in other

> sites for their effect. In other words, meaning is not simply sent from one autonomous sphere – production, say – and received in another autonomous sphere – consumption. Meaning-making functions less in terms of such a 'transmission' flow model, and more like the model of a dialogue (du Guy et al., 1997, p. 10).

Supporters of this idea argue that we need to at least attempt to account for as much of the circuit of culture as possible in order to say something meaningful about this ongoing dialogue—this *discursive nature* of human relations. Meaning is not imagined to ultimately reside as some *a priori,* conceivable, hard entity—some *thing* we could point at. Meaning is a process. It depends upon the time and the place; the point of view. Meaning must be associated with the way the moments just discussed may be *interrelated.* These interrelationships may seem static, even permanent. Or, they might seem quite fluid and subject to change, again depending on conditions from one time to the next. Hall (1994, 1996a, 1997), and others (Curtin & Gaither, 2005, 2006; du Gay et al., 1997; Taylor et al., 2002), have referred to these connections of moments with the term 'articulation' (or 'articula*tions*'). Meaning is considered to be related to the particular arrangements of these articulated moments —the way (or ways) we, as observers, can say the moments, sometimes for a relatively short time, overlap in the experience of their beholders.

We can see, then, the way the circuit provides a much broader view of an imagined cultural horizon (which leads to the notion of expanding horizontal understanding, discussed earlier). We avoid the limits that come with focusing our investigations solely on individual cultural moments. For instance, Smith (2001, and to a lesser extent Benwell, 2005), has criticized Hall (1992) for what he considers a commemoration of consumption at the expense of the determinative materialist interpretations that have been a hallmark of Marxism. Barker

(2003) has countered that the circuit of culture bridges the gap between Smith and Hall's position, directing us to expand our field of research to include the widest horizon of meaning, imagining culture in terms of processes of production, consumption, regulation, representation, *and* identity. "Thus, much of the cultural studies versus political economy debate appears to be overstated," Barker concludes (p. 419).

Three Levels of the 'Circuit of Culture': Adding Depth with 'Vertical' Understanding

Hall has invited scholars to negotiate with his concepts, explaining, "If you're going to work with the model, you have to change the model and develop it," (Cruz & Lewis, 1994, p. 272). In that spirit, I introduce an adjustment to the Open University approach to the circuit of culture. It hinges upon what these scholars intended by the term 'meaning'. I believe the concept of meaning could be further developed in the circuit of culture project. Of those involved in the Open University project, Hall (1997) has been most straight-forward in his discussion of meaning. Hall tells us that "meanings are produced at several different sites and circulated through several different processes or practices…" (p. 3). This fits the circuit of culturalist argument that it is not helpful for understanding to imagine that meaning is located exclusively within the boundaries of a particular cultural process. Hall also makes the point that people—cultural players—*interpreters,* are necessary to complete the circuit, "It is participants in a culture who give meaning to people, objects and events," (p. 3).

Hall is clear that meaning is possible across the circuit of culture, and interpreters play a role in that meaningful activity. Hall is asking us to not forget that *producers* are involved in production, *representers* do the work of representation, *regulators* enact regulation, *consumers* engage in consumption, and *identifiers* (all of us, in one way or another) participate in identity. Each has the potential to interpret the meaning of the experience of her or his position. Does that mean that the interpreters are the final authority on meaning? Such a claim runs counter to what I would argue is the processual nature of meaning. But interpreters *are* a critical piece in the cultural whole that we, as researchers, should account for in our information gathering and examinations. To say something meaningful about any moment in the circuit of culture, we must look to multiple moments and the articulated nature of their discourses. But still, our task is not complete. These moments and articulations must be *translated* for (and by) us, by those who participate, ideally at various locations, across the circuit.

A very clear statement about cultural meaning has been made in sociology by proponents of a philosophical orientation known as 'cultural sociology' (Alexander & Smith, 2003). Their version of cultural experience is similar to, and potentially helpful for, circuit of culturalists. Rejecting the notion that 'culture' should be described in terms of a dependent variable dictated by some deeper social structure, cultural sociologists advocate a *discursive* model of culture. (Defining 'discursive', Hoover, 1995, has written, "Whereas it was once commonplace for theorists to see speech and action as being merely reflective of more fundamental or deeper structures, norms and values, we now see speech and action as constitutive of social reality," p. 139). Cultural sociologists Rambo and Chan (1990) have written that 'text', 'action', and 'structure'—taken together—equal 'culture'…and 'culture' equals 'meaning'. This implies that before one can make a meaningful statement, one must have a sense of text, action, *and* structure. Obviously, this cultural model is simpler than that of the Open University circuit of culture heuristic. It has fewer imagined moments. But we can see a sense of articulation in the cultural sociologist's encouragement to at least attempt to represent a horizon of culture when interpreting human experience. Where cultural sociologists differ, however, from circuit of culturalists is a clearer statement about the role of the *interpreter*:

> There is not a one-to-one connection between the parts and wholes of culture. Parts indicate different possible wholes; different patterns can be seen in the objective elements. The text does not simply reveal culture-structure automatically; it does not speak for itself. After all, the parts are ambiguous; some parts are superfluous; some parts are contradictory. To be seen, structure requires inputs of human effort; data analysis, a reading, *interpretation* (Rambo and Chan, 1990, p. 647).

Scholars who have cited Johnson's (1986, 1986/87) work in the development of the circuit of culture have failed to similarly revisit his questions about the role of the interpreter in cultural meaning. Johnson introduced this idea when he reminded us to pay attention to the "social divisions" of cultural experience. By way of example, Johnson used the story of a British car (the "Metro") and discussed the way it might be represented within each moment of the circuit. Describing a humorous commercial for the car, he offered this interpretation about what the advertisement might mean: "The Metro was a nationalist hero in an epic of the Dunkirk evacuation, played backwards!" (p. 285). But then Johnson pointed out that different interpretations, or meanings, might be possible: "While our analyst (*i.e., Johnson*) abstracted forms for study—epic narrative, popular memories of the Second World War—'ordinary readers' made their own sense of the thing" (p. 285). In other words, Johnson is arguing for two levels of meaning—that of the people engaged within the cultural circuit we claim to be studying, and that of the 'analyst', that person, or persons, attempting to interpret what is imagined to be lived experience.

Johnson (1986/87) is being 'reflexive' in his interpretation, a strategy that I believe would strengthen the work of Open University circuit of culturalists and their contemporary adherents. A number of attempts have been made to describe the concept (Atkinson & Coffey, 1995;

Davies, 1999; Dupuis, 1999; Hopper, 1995; McGee and Warms, 1996; Myerhoff & Ruby, 1982; Phillips, 2001; Van Maanan, 1988), including this succinct definition by Myerhoff and Ruby (1982):

> The capacity of any system of signification to turnback upon itself, to make itself its own object by referring to itself: subject and object fuse… Reflexive knowledge, then contains not only messages, but also information as to how it came into being, the process by which it was obtained (quoted in Dupuis, 1999, p. 59).

Reflexivity is not a recent concept. We can detect its essence in Cooley's (1926) sociological work when he called for 'sympathetic introspection' in research. Dupuis (1999) summarized Cooley's approach, "In order to understand other's experiences, we as researchers had to sympathetically ascribe our own emotions and experiences in the situation to those we were studying" (p. 51). Despite this early awareness, it was not until much later in the century, spurred on by the 'rediscovery of rhetoric' in communication studies (Atkinson & Coffey, 1995)—the idea that knowledge is socially produced—that the recognition of reflexivity truly made its mark in the fields of anthropology, and, less significantly, sociology. Questions arose, especially among ethnographers, about the practice of making knowledge statements about others without first revealing the particular perspectives from which those claims had been made. Gruenberg (1978) concluded, "any statement which holds that humans necessarily act or believe in particular ways under particular circumstances refers as much to the social scientist as to anyone else" (p. 322).

Over time, as one might expect, a preoccupation developed with the way reflexivity seemed relativistic. Some celebrated, others feared, the possibility of a post-modern/poststructural nihilism which threatened to challenge any meaningful knowledge claims in the human sciences (Davies, 1999; McGee & Warms, 1996). If, as Gruenberg (1978) stated, it is as much about us as them, then who (other than perhaps our mothers), will care about what we are reporting in our research? Indeed, Denzin (1997) warned, "Endless self-reflections and self-referential criticisms will produce few texts anchored in the worlds of concrete human experience" (p. xv).

If I were saying that the practice of meaning is exclusively the researcher's, then I might truly be open to charges of a debilitating relativism. But this is not the point of developing this idea. In his seminal book on ethnographic practice, Van Maanen (1988) argued that we must recognize and in some way account for multiple levels of meaning: that of the research subject, the researcher, *and* the audience of the final report. He indicated that cultural experience is possible at all three levels. "Ethnographies are documents that pose questions at the margins between two cultures," Van Maanen wrote. "They necessarily decode one culture while recoding it for another" (p. 4). Morley (1992) argued that there has been a tendency to ignore the culture (meaning making) of the audience for academic reports. Some influential researchers have "been content to deduce audience responses from the structure of the text," (quoted in Hopper, 1995, p. 66). Latour (1988) argued that "readers seem to be much more devious, harder to take in, much cleverer in deconstruction, much faster in fiction-making than is assumed by those writers who, with some arrogance, believe . . . [they know what] others believe" (quoted in Hopper, 1995, pp. 65-66).

Figure 2 represents an attempt to visualize this discussion—a pedagogic device in which I have imagined three co-existing levels of meaning. Basically, the circuit of culture model has been tilted back, simplified somewhat (i.e., fewer arrows, but the intent is the same—the arrows are meant to signify potential articulation between the moments at each level), and then replicated and stacked, so there are now *three* imagined levels of meaning (note that I have also attempted to represent the way the cultural moments at each level may articulate with moments at other cultural levels). Level 1 is meant to represent the 'phenomenal' level. This is the level of human experience circuit of culturalists imagine when they do what I characterized earlier as horizontally powerful analyses. It is meant to signify the map of human relations that we, as researchers, assume to be taking place, 'out there'.

Level 2 (the 'researcher' level) and Level 3 (the 'report audience' level) are intended to add depth, the important *vertical* dimension, to the circuit of culture I promised earlier. Is there anything we can say about the researcher's cultural moments? What of the productions, consumptions, regulations, representations, and identities salient to the *researcher's* world? How might a discussion of the articulation—the relationship—of these moments in the researcher's experience be a factor in his or her interpretations? Should we share anything about that? How might we present this information?

And finally, should we think in some way about the articulation of the same elements in the experience of the *audience* for the researcher's report (Level 3)? Do we gain anything by placing more faith in the meaning-making abilities of those who in some way will be aware of our research reports? At Level 3, audience members have more than the processes of production, consumption, regulation, representation, and identity that we describe for them at Levels 1 and 2. We can imagine that they can also reference articulated cultural moments in relation to their own social experiences. We must assume that if our interpretations (Level 2 presentations of culture) stray too far a field from the meaningful life of audience members, and they have the means to interpret the dissonance, then they will reject our interpretations. Of theoretical ideas, Geertz (1973) wrote, "If they cease being useful . . . they tend to stop being used and are more or less abandoned. If they continue being useful, throwing up new understandings, they are further elaborated and go on being used" (p. 27). In many ways this helps us further assuage any remaining anxiety over relativism and postmodern nihilism. When we make a statement about interpretations of cultural moments and their articulations at Level 2 (by way of Level 1), meaning does not stop with them (agents at Level 1), or us (researchers at Level 2). We trust that to varying degrees the audiences for our reports, lodged in some relationship with articulations of the five cultural moments, hold our interpretations up to their own. True, our interpreted meanings may influence the way in which they fashion theirs. However, as others have argued (Hopper, 1995; Latour, 1988; Morley, 1992), it could be dangerous to assign too much weight to our own reported interpretations. If our meanings fail to resonate at Level 3, they will probably be accorded little respect, and rejected, or at least tempered within the negotiated interpretations of our audiences at Level 3.

Applying Three Levels of the Circuit of Culture

What might such research look like? I have followed the example of Walkerdine (1986, 1993, 1997) who rather self-consciously shares with the reader a sense of the historical trajectory of her cultural context. When Walkerdine discusses the intersection of her working class, intellectual, and feminist identities, it helps us to understand her interpretations. For instance, when she reports being unsettled by the observation of a working class man's enthusiasm for a particularly bloody fight scene (1986) in the original *Rocky* movie, I can, as the audience member for her report, understand both why such an experience would make Walkerdine uncomfortable, and why the man would enjoy that scene. Walkerdine has shared enough of her cultural context to allow me to more deeply interpret her interpretation. She has provided the means for a powerful triangulating effect. As the reader, I am aware of her description of a phenomenal event. I can interpret her report in relation to what she has shared about her identities. And I can further reflect on this from the perspective of my own cultural context. For example, as someone who identifies with being male in Western society (which, for good or bad, often brings with it the celebration of stylized violence in such a text as a boxing movie), I can make sense of the man's appreciation for the film. If the cultural studies scholar's job is to demonstrate patterns of discourse in routine life, I can think of no better example of this than Walkerdine's narrative of the *Rocky* observation. As an audience member for Walkerdine's research presentation, this experience reminds me of the never-ending negotiative complexity of human experience.

Using Walkerdine as a guide, but more clearly including the circuit of culture heuristic, I will briefly discuss the discursive interpretation of a particular text—a poster/advertisement for the Smokey Bear anti-wildland fire campaign (Figure 3). This text was gathered as part of a broader ongoing investigation of the evolving human relationship in the West with a concept collectively known as the 'natural world'. This includes changing patterns of experience with a dynamic natural process: wildland fire. Figure 3 is just one text of the long-running Smokey Bear campaign. In a number of essays (Brown & Davis, 1973; Fuller, 1991; Godfrey, 1995; Heinrichs, 1982; Loeffelbein, 1981; Morrison, 1995; Rice, 2001) historians, social scientists, and other interested writers have carefully documented the way public land managers in the United States have believed since the first half of the 20th century that communication with the public would be a large factor in the management of wildland fire; they have subscribed to the notion that managing fire is easiest when it does not get a chance to start. The Smokey Bear campaign originated and evolved in relation to this idea. Lodged in a rather straight-forward 'effects' oriented approach to communication, these analytical discussions have largely confirmed and even celebrated the effectiveness of the campaign, in an administrative, instrumental sense.

In keeping with my earlier discussion, I would argue that we step up our interpretations by first working to locate the research of such topics *horizontally* in relation to the moments of an imagined circuit of culture. In the case of Smokey Bear, interpretation of a text related to the campaign aids in our understanding in terms of 'representation'.[2] As Hall demonstrated (1997), such texts can help us understand how humans utilize the 'difference' of an imagined other to establish and maintain terms—the meanings—of their own existence. Hall has described how this can occur in relation to a wide variety of human relations (1996b), but advertising texts are particularly common contemporary locations.

I have also argued in this article that we stand to enhance the interpretive process even more by attempting to locate our research *vertically* as well. For instance, in the case of the Smokey Bear text (Figure 3), I believe it aids the reader's interpretation (in the style of Walkerdine) if I briefly share a sense of the particular terms of my own knowledge of the Smokey campaign. The circuit of culture provides a nice means with which to do this. For instance I had a very early awareness of the campaign, and my relationship with it has changed over my lifecourse. I grew up recreationally camping and canoeing in the Northern Midwestern region of the United States—an area of vast tracts of un- or little-developed, forested land. As a child, the Smokey messages were highly salient, regularly arriving by way of television, radio, newspapers, magazines, pamphlets, and posters. I felt this discourse was meant specifically for people such as me. I admired and trusted this iconic figure and his advice. I believed that each and every individual could and should do his or her part to prevent forest fires. I trusted that if we were all diligent about fire, the result would be a healthier, safer forest for all living things—

not just human visitors, but the flora and fauna that lived there. In this way, I unproblematically accepted the preferred discourse (Hall, 1980, 1997). In terms of consumption, I was rather easily hailed (Althusser, 1998) by the producers and their representations. I bought into their regulatory goals. Smokey's suggested identity became a part of my own.

I can still easily read the discourses (or 'myths' [Barthes, 1972]) prominent in the Smokey Bear advertisement (Figure 3) in this preferred way. Smokey's image is pleasant to me. He seems cuddly, non-threatening, with a round flattened face, small button nose, large almond eyes, soft ears, and disarming expression—a life-size teddy bear, complete with ranger hat. In comparison to the forest creatures around him, Smokey's image is clearly in the cartoon style. But the images of the other animals share some of Smokey's disarming characteristics, despite the artist's attempt at increased realism. There is a pronounced softness about them, a plushness, that reminds one of stuffed animals sold in gift shops. Many of the heads are rounded, many of the faces flattened. Their expressions are also non-threatening. Even the plants around these characters seem idealized, softened, and lush. One could imagine lying back amongst that foliage and taking a nap. The wildlife creatures and their habitat are presented as interrelated, and interdependent, such as an ideal human family (i.e., "Our family…depends on your family."). With Smokey's visage, and the standard phrase, "Only you can prevent forest fires," the image immediately links to the long running campaign, which portrays wildland fire as a potentially disruptive, destructive force. With this as a main organizing theme, the image could be interpreted as linking to discourses in which humans should care about wildlife, their habitat, and the natural, undeveloped world in general.

But over time I have changed, not reaching the perspective of complete opposition, but certainly a negotiated one. The first important alteration is the result of an awareness of a dialectic in environmental philosophy of opposing discourses. The first can be associated with the researchers and thinkers cited earlier who have written about the Smokey Bear campaign (Brown & Davis, 1973; Fuller, 1991; Godfrey, 1995; Heinrichs, 1982; Loeffelbein, 1981; Morrison, 1995; Rice, 2001). This orientation is based on a utilitarian/humanist view of the natural world in which nature is characterized as something to be protected and made available for human use, from one generation to the next. Over time a variety of distinct humanist ideas have emerged, from nature as foe to be vanquished, to nature as friend to be conserved. Ultimately though, according to this orientation, nature is a tool for human use and subject to human control (Nash, 1982, Fine, 1997, 1998). Later, my education led me to become aware of alternative meanings of nature, including an increasingly prominent set of discourses collectively assembled under the term 'preservationism'. Preservationists consider nature least touched by humans to be most authentic. Elements of the natural world are believed to have 'rights', just as any human would (Nash, 1982; Fine, 1997, 1998). Again, there is a continuum of discourses in this perspective that vary according to the imagined position of humans in relation to nature. Some put humans on equal footing, no better and no worse than nature, while other more radical approaches call for the removal of humans from the natural world. From this perspective, one can imagine that Smokey's warnings to never spark an unplanned wildland fire, to put out such fires immediately, and to be diligent in excising them entirely from the ecosystem experience, aids in the removal of an important element of what we were told is the ecological whole. I have come to be aware of the argument that such experiences have resulted in unhealthy forests—in fact, the *opposite* of what Smokey Bear promised. Over time, this situation has led to the growing accumulation of trees and undergrowth, both living and dead. Now, when conditions are ripe, these fuels are easily ignited, sometimes with devastating results.

To what extent would we be able to identify (or perhaps more appropriately, *imagine*) utilitarian discourses related to human control (i.e., modern, scientistic, patriarchal, see Fine, 1997, 1998; Leiss, 1972; and Nash, 1982) of the natural world in the Smokey text (Figure 3)? To begin, as discussed earlier, there is a clear attempt on the artist's part to evoke an anthropomorphizing discourse (for more on anthropomorphization in nature-related communication, see Bousé, 1998, and Papson, 1992). Again, the images of these animals are rounded. They have flattened features, big eyes, and are indeed non-threatening, largely because they have been endowed with infantile features that humans find pleasurable. In the text we also see an anthropomorphizing discourse of family. Animals are presented as living in harmony with one another, as discussed earlier, such as the idealized human family. Again, as noted earlier, even the background foliage is presented in a particular way, in this case, softened and thick, a look many humans prefer as backdrops for their homes and recreation. In reality, such dense flora is not natural to many forest types, and is often this way because wildland fire has been suppressed for decades. Under many conditions, dense forests provide an abnormal fuel load and are thus prone to the kind of unnatural catastrophic fire that incinerates even the largest, healthiest trees, and sterilizes the soil, leaving it devoid of life for years, and thus, prone to devastating erosion that may take centuries to counteract. We see a clear connection to the utilitarian discourse in the message that it is humans who can control, and in fact excise, wildland fire. Finally, the entire enterprise is negated by the fact that not only is wildland fire considered by many scientists to be a necessary piece of the natural whole, it is a critical ecological process. So, suppressing wildland fires can be seen as the *opposite* of what humans should be doing. Indeed, it is because of humans that many undeveloped regions of the western United States are in their present precarious state. Interpreted in this way, the Smokey Bear campaign is almost completely in contradiction with the way scientists define a healthy forest! Despite the encouragement to behave in ways that 'protect' wildlife, this text is in no way linked to preservationist discourses. In the long run the animal species depicted here would actually have a *better* chance of maintaining healthy populations if wildland fire were a functional part of their balanced habitat.

The question we are left with then is why? Why was this text created in just this way? Was it ignorance? Were the creators of the message simply not aware of the forest science just discussed? That seems unlikely. The model of a holistic, integrated eco-system in which wildland fire is a necessary and functional ingredient is now commonly accepted in the field of natural resources. Could it have something to so with inertia? The Smokey Bear project is often celebrated as the most successful public information campaign in history (Rice, 2001). Changing message now might be difficult for its managers. I believe a more appropriate answer lies in a cultural studies-style sensitivity to hegemonic power relations. The Smokey Bear campaign is administered by the United States Department of Agriculture Forest Service (along with the National Association of State Foresters and the Ad Council). A significant institution such as the Forest Service may have other motives than the protection of wildlife and its habitat. This organization may be making decisions based on seemingly unrelated discourses, such as the political pressure to defend human development in historically wildfire prone areas. And it may even be deeper than that. If it is true, as Hall (1996b, 1997), and others (Curtin & Gaither, 2006) have argued, humans utilize the perceived 'difference' of the 'other' to help them define the terms of their meaningful existence, how might we use this text to imagine the way 'nature' serves that purpose here? I have demonstrated how the meaning of nature is being ascribed in terms of the utilitarian discourses I related to as a child, discourses in which humans are imagined to be in the position of control, the stewards of wildlife and its habitat. A natural process such as wildland fire is demonized in this text, presented as opposite (and thus further defining) the positive meaning of human (for more on the evolution of the use of nature as other, see Price, 1997).

With this discussion, I intended to demonstrate Myerhoff and Ruby's (1982) idea that conclusions make more sense to members of our report audience when we share a little more about what guides our interpretations. The circuit of culture, conceived in three levels, provides us with a heuristic for visualizing this process. As discussed, I once accepted the utilitarian discourse of nature as my own. In a hegemonic sense, the circuit of cultural logic of the USDA Forest Service seemed to me to accurately reflect the natural order of things. But I no longer unproblematically accept this version of reality. As a consumer I am aware now and operate in relation to a different set of discourses than the Forest Service producers and their representations. I no longer buy into their regulatory goals. Smokey's suggested identity is no longer as attractive to me as it once was. We could say that I exist in relation to an entirely different circuit of cultural logic—different discourses of production, consumption, regulation, representation, and identity. And yet, do we ever completely divorce ourselves from our early identities? Again, following Walkerdine's example (1986), she criticized one aspect of working class discourse (i.e., the man's enjoyment of a violent movie). But Walkerdine maintained the importance of paying attention to working class culture. I feel the same about nature. Even though I question the motives behind the Smokey message, I am still influenced by my early interest in the natural world, of which the Smokey Bear campaign undoubtedly contributed.

Conclusions

In this article, I have argued for enhancing a concept known as the 'circuit of culture'. First, I promoted the meaningful interpretive power of imagining human relations in terms of the circuit's five articulating cultural processes (i.e., production, consumption, regulation, representation, and identity). Second, I called for enhancing the circuit model by thinking of meaning in terms of multiple circuit levels (i.e., at the phenomenal, researcher, and report audience level). I argued that providing the reader with a sense of cultural processes at the phenomenal level, as well as cultural processes at the researcher level, serves to augment the report audience member's ability to make meaning in relation to her/his own perceived contextual cultural processes. In the true sense of triangulation, the result is a more powerful and nuanced process of interpretation. I demonstrated this research strategy by providing an example: an interpretation of a particular text from the long running Smokey Bear advertising campaign. This text was discussed in terms of phenomenal level cultural processes, particularly representation. I also shared a sense of the context of my own researcher level cultural processes.

I have made the case in this article for enhancing horizontal holism with vertical depth. In this, I believe, the cultural sociologists (Alexander & Smith, 2003; Rambo & Chan, 1990) get it right. We need to imagine a heuristic in which interpreters (at more than one level) play a role in understanding. It is a mistake to take the interpreter to be the *final* arbiter of meaning. Meaning is always in process, as Peirce (1960), Jensen (1990), and Linderman (1997) have argued, and we need to communicate that in our research reporting. Johnson (1986) got at this idea by underscoring the need for a "sense of the connection between knowledge and power among knowledge producers themselves" (p. 279). He supported this by referencing the theories of Bourdieu, Foucault, work within the social history and sociology of education, and feminist criticism of determinative tendencies of the academy—its agenda, social relationships, and knowledge produced. Why do some meanings get more interpretive play in the academic cultural circuit than others? Should we share something about that with the report reader (Level 3)? By presenting some sense of the moments and articulations in relation to which we, as researchers, live—some idea about both the limits *and* the freedoms we experience as conditions of our own cultural circuits—might report audience members better understand how we arrived at the interpretations we did, which, in turn, might help them with their own interpretations at Level 3?

The question of course is how much to share. This is the point where critics bemoan the turn toward full-blown autoethnography, which combines observed information about human lived experience with a great deal of self-disclosure on the part of the researcher (for examples and discussion of this concept, see Crapanzano, 1980; Etherington, 2004; Reed-Danahay, 1997; and Rosaldo, 1996). Obviously, one needs to strike a reasonable balance. After all, the audience member will come to my report on communication about wildland fire mostly interested in communication about wildland fire, rather than the life, times, and perhaps poetry of a cultural studies scholar. But still, by sharing something about the moments of *my* cultural experiences, how those processes articulate, and the evident patterns of determination and agency, it increases the possibility that the audience for my report will experience an enhanced, multi-dimensional interpretation.

I would like to present a nuanced story of humans and wildland fire (and more generally, the natural world). But ultimately, I am searching for a workable metaphor for culture. "I agree with Foucault," Hall (1996a) wrote, "that what we require here is 'not a theory of the knowing subject, but rather a theory of discursive practice'" (p. 2). How should we approach the task of finding a way to share stories (versions) of humanity? I have always seen that to be our charge as cultural researchers. We should begin, as Dozier and Lauzen (2000) encouraged, by looking *outside* the usual places. We can focus our energies on the broader horizon modeled in the circuit of culture (Figure 1), and at the vertical depth characterized by the three levels (Figure 2) of the circuit. Lewis (1994) quoted and paraphrased fellow researcher Morley this way, "He says, 'Where is the preferred reading?' Is it already inscribed in the text? Is it in the analyst's reading of it? Or is it in the audience's reading?" (p. 265) We must recognize that meaning, and the power that oftentimes influences it, runs throughout the three levels of the circuit of culture. It is our job to present it in terms of process, to tell richer stories, and to recognize that these tales will be rejected, negotiated, or taken up and carried along in the interpretations of our report audiences, in articulation with the moments of their own circuits of culture.

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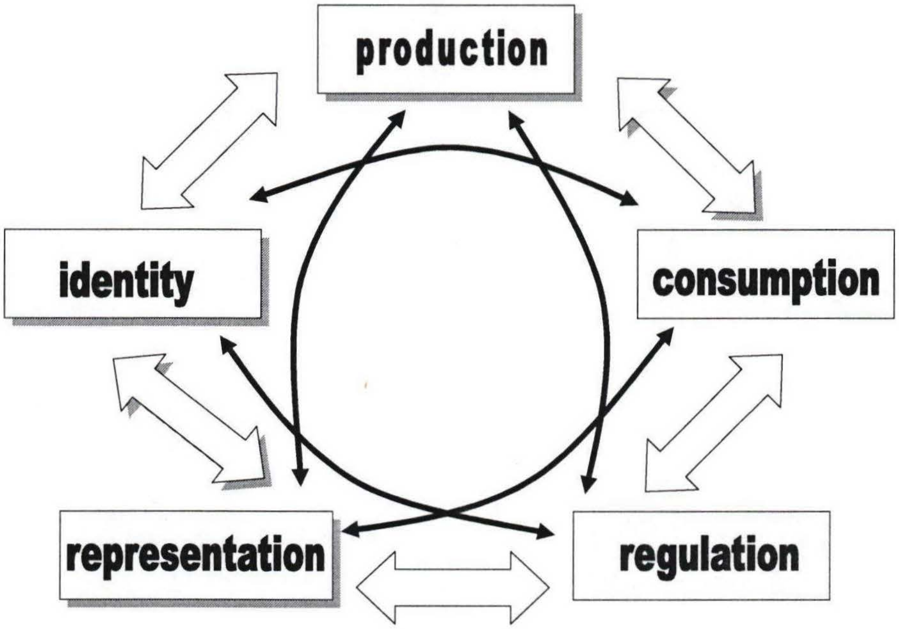
production
identity
consumption
representation
regulation

Figure 1 Circuit of Culture (du Gay et al., 1997)

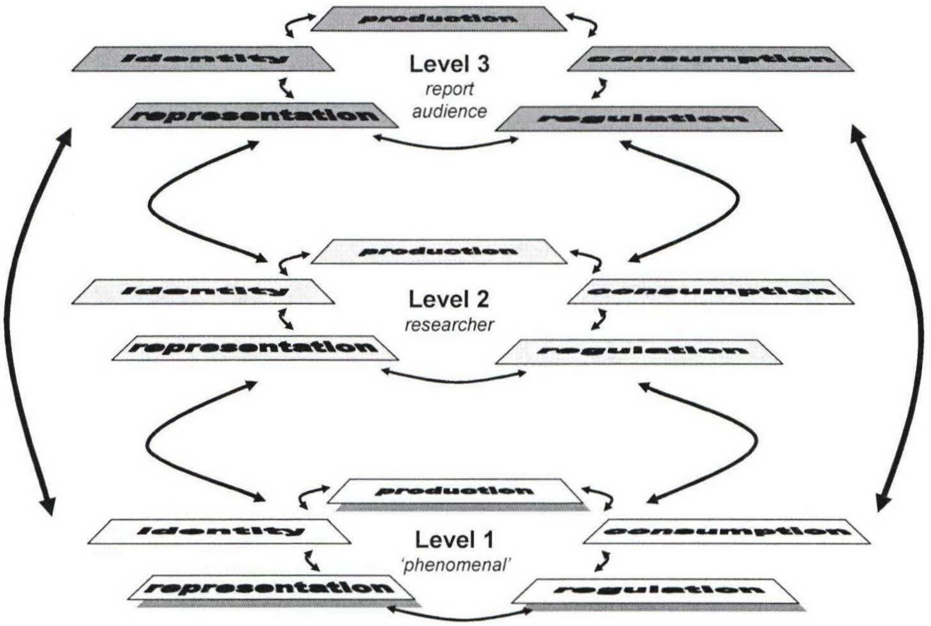
production
identity
Level 3
report
audience
consumption
representation
regulation
production
identity
Level 2
researcher
consumption
representation
regulation
production
identity
Level 1
'phenomenal'
consumption
representation
regulation

Figure 2 Three Levels of the Circuit of Culture

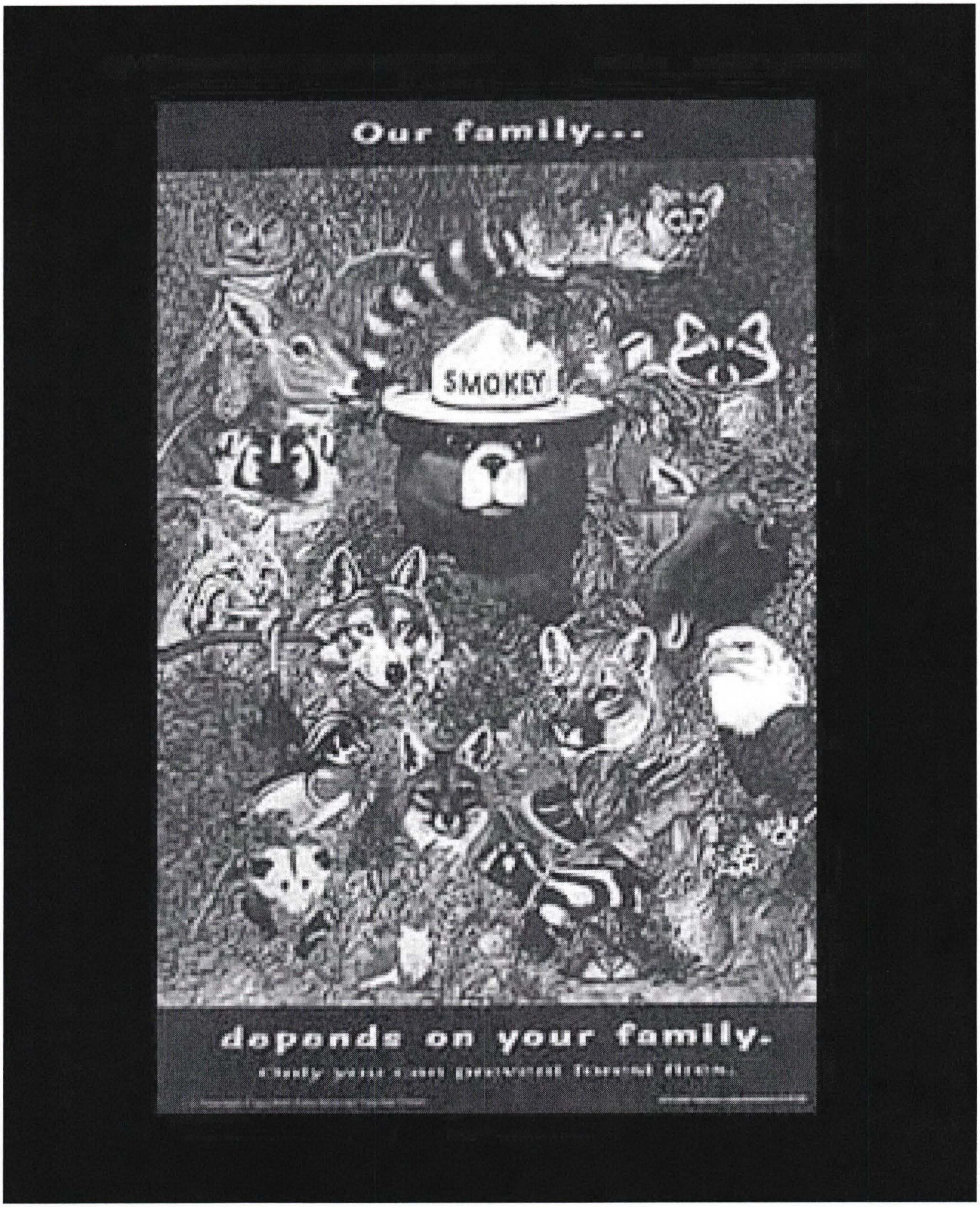
Our family...
SMOKEY
depends on your family.
Only you can prevent forest fires.

Figure 3 Smokey Bear advertisement, 1995. Used with permission of USDA Forest Service

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[1] This model has been utilized in a variety of fields and topic areas, including, advertising (Soar, 2000), film and television studies (Acosta-Alzuru, 2003; Dean & Jones, 2003; Levine, 2001), human geography (Squire, 1993, 1994a, 1994b), men's magazines (Benwell, 2003, 2005), the music industry (Fraley, 2003; Taylor, Demont-Heinrich, Broadfoot, Dodge & Jian, 2002), public relations (Curtin & Gaither, 2005, 2006; Terry, 2005), science journalism (Burgess, 1990; Wilcox, 2003), and tourism (Norton, 1996).

[2] Ideally, a researcher (or team of researchers) would be somewhat coordinated (or at least aware) in the execution of other studies of a particular topic that address other moments of the circuit. For instance, in my own work, in addition to studying the Smoke Bear campaign, I am examining another example of representation—collecting and analyzing mainstream journalistic texts (television and newspaper) about the topic of wildland fire in Northeastern Colorado. I am also working with colleagues on a study looking at efforts on the part of a consortium of governmental agencies to encourage landowners and local organizations to prepare their properties in ways that ease the threat of catastrophic wildland fire. This study gives us the opportunity to say something about the extent of the articulation of discourses related to 'production' (i.e., institutional communication on the part of the consortium) and 'consumption' (i.e., what the public and organizations are doing with that communication). My colleagues and I are also currently researching the history and contemporary status of wildland fire 'regulation', in both a formal administrative policy sense (e.g., the United States Wilderness Act of 1964, see Pyne, 1982), as well as the less formal local norms of those who live and recreate in fire-prone regions (e.g., statements from forest dwellers who say they yell at anyone they see tossing a lit cigarette out a car window). And finally, we are researching, interpreting, and writing about the expressed 'identities' of a small group of people living and recreating in and around a national forest in Northeastern Colorado. By working our way around the circuit of culture, in each stage adding more *context* to our research topics, we intend to be able to make much more powerful interpretations. For instance, we gain a sense of the wider cultural processes in relation to which (or rather, in *articulation* to which) discourses such as those related to the Smokey Bear campaign have played a role in the direct meanings of wildland fire, and the more general meanings of nature. A shared theme emerging from these studies is an ongoing dialectic between discourses of human control over the natural world (patriarchal, utilitarian), and discourses of human co-existence with nature (feminist, Gaian). These interpretations, in conjunction with shared information about ourselves as researchers, will assist the audiences for our research reports in reaching their own interpretations.

Three Levels of the Circuit of Culture:
Accounting for Horizontal and Vertical Meaning in the Human Relationship to Wildland Fire

A manuscript submitted to:

Environmental Psychology

by

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Three Levels of the Circuit of Culture: Accounting for Horizontal and Vertical Meaning in the Human Relationship to Wildland Fire

Asked to administer a multi-stage examination of the evolving relationship between humans and wildland fire in Northeastern Colorado, the author synthesized scholarship in natural resources, sociology, anthropology, communication, and cultural studies in an effort to develop a foundational research framework. The author argues that this cross-disciplinary perspective provides what he calls increased 'horizontal' and 'vertical' interpretive power. Horizontal perspective is the result of accounting for five cultural processes in terms of their location and interrelation within social experience. Vertical perspective is provided by a reflexive, iterative, research orientation that attempts to highlight interpretation at three levels (phenomenal, researcher, and report audience). The author makes the case that such an approach bridges the developing socio/cultural and individual/expressive perspectives in environmental psychology. Ultimately, we are able to make more nuanced statements about meaning.

Three Levels of the Circuit of Culture: Accounting for Horizontal and Vertical Meaning in the Human Relationship to Wildland Fire

2] With the threat of catastrophic wildland fire increasing in the Western United States (Busenberg, 2004), researchers have scrambled to better understand the people who increasingly live, work, and play in wildland fire prone natural areas (Cortner & Gale, 1990; Dannenberg, 1988; Shands, 1988; Davis, 1986; Gale & Cortner, 1987; Gardner, Cortner & Bridges, 1985; Nelson & Beyers, 1998; Shumway & Davis, 1996; Shumway & Otterststrom, 2001; Swanson, 2001; Tokle, 1987). The Front Range of the Rocky Mountains in Northeastern Colorado is the site of a rapidly evolving human experience with wildland fire. It is as if the wildland urban interface (WUI) of the Front Range—that overlap zone in which human dwellers and recreationists intermix with previously undeveloped, wild landscapes—has been wedged in an ecological/social vice. There is the pressure of accumulating fire fuels and recurrent drought conditions on one side, while on the other, ever more people wanting to live and play there. Land managers fear that catastrophic fire in these conditions could result in deaths of humans and domestic animals, the destruction of property, and the disruption of forest ecology, including mature trees and soil quality, which might negatively impact watersheds. Many thousands of people are focused on understanding this problem. Politicians, government social scientists, university researchers, land managers, community leaders, fire fighters, homeowners, and recreationists, all want to know more about how to deal with wildland fire.

3] The trouble is, this is not a "tame problem," with a clear "mission" and easily achieved "solution." It is what Rittel and Webber (1973) called a "wicked problem," perhaps impossible to solve because of its boundless, ever-changing, processual nature (p. 160). It is like playing a game in which the regulations continually change and the players only discover the alterations as these new rules are broken. Understanding (or attempting to craft a meaning of) such circumstances requires a creative approach; we must look in new places, casting a very wide net to capture an extensive range of human experience. To generate important insights into the complexity of life with wildland fire, I believe researchers must gather and associate information about a much broader and deeper range of social experience than has been done in the past. This should include linked examinations of such topics as: How agencies and other key participants are communicating their mission of managing for healthy forest conditions (a strategy that these players hope will help ease the threat of catastrophic wildland fire). How individual and group stakeholders are actually living alongside of and interpreting those messages. How regulations, both formal (such as political, judicial, and other governmental policies at the macro level) and informal (such as micro level social rules and norms) develop to keep pace with the wildland fire situation. How news media and other interested institutions represent the story of wildland fire. And how forest dwellers and visitors are negotiating identities in relation to wildland fire and its related issues. I am involved in research that will produce reports about each of these topics.

4] But before tackling these more specific discussions of substantive research, I intend to use the space of this article to introduce a research perspective that I believe is particularly well suited for approaching such wicked problems. A large portion of this research approach is based on a concept known as the ‘circuit of culture’. Largely based in critical/cultural studies, this orientation has been utilized in a variety of topic areas, including advertising (Soar, 2000), film and television studies (Acosta-Alzuru, 2003; Dean & Jones, 2003; Levine, 2001), men’s magazines (Benwell, 2003, 2005), the music industry (Fraley, 2003; Taylor, Demont-Heinrich, Broadfoot, Dodge & Jian, 2002), and public relations (Curtin & Gaither, 2005, 2006, 2007; Terry, 2005). Although it has also guided research related to human geography (Squire, 1993, 1994a, 1994b), science journalism (Burgess, 1990; Wilcox, 2003), and tourism (Norton, 1996), to date there have been no evident direct applications of the circuit of culture in what is known as environmental psychology.

5] Another piece of the research approach presented here is based on an interpretive research orientation known as 'reflexivity' (Atkinson & Coffey, 1995; Davies, 1999; Dupuis, 1999; Hopper, 1995; McGee and Warms, 1996; Myerhoff & Ruby, 1982; Phillips, 2001; Van Maanan, 1988). Proponents of this concept believe it is important to account for the role of the researcher in the interpretation of meaning. And, I will argue, reflexivity points us toward at least recognizing as well the role of the research report audience member in the interpretation of meaning (particularly Van Maanan, 1988). This approach overlaps to a certain extent with Patterson and Williams' notion of a 'forestructure' of understanding' (2002), but otherwise has also not been a common research orientation in environmental psychology.

6] As I hope to make clear, I intend for my approach to research will provide a valuable means with which to place the human experience of wildland fire into a broader perspective, giving us what I will describe as *horizontal* and *vertical* interpretive power. But first, to help us understand the potential contribution of such a combination of ideas to environmental psychology, I will briefly consider some of the primary ways in which meaning has been presented by researchers in this field to date.

Environmental Psychology: Common Approaches to Meaning

7] Saegert and Winkel (1990) identified three distinct bodies of research and theory focused specifically on relationships between people and environments, a set of phenomena commonly known as environmental psychology. In the first, what is known as the 'adaptive' assumption, environmental meaning is thought to be the result of behavior related to the needs of biological survival. For example, proponents of this idea argue that contemporary people generally prefer environmental spaces with attributes mimicking the safe, abundant landscapes our ancestors would have found easily survivable. Thus, if we wish to understand what a landscape *means*, we would search for underlying determinants related to aesthetic preferences (Hull, 1989).

8] Saegert and Winkel's (1990) second distinct set of ontological/epistemological assumptions prompt us to imagine the meaningful environment in terms of opportunity structures. In this case, people are more clearly credited with meaning. This 'instrumental/goal-directed' concept presumes that people will rationally select the option that best suits their needs. This prompts land managers to assess an environment in terms of its potential to fulfill human goals. The model allows more room for human agency than the adaptive concept, but both views share a certain determinacy in their objectification and generalizability in terms of environmental attributes (Driver, Brown, Stankey & Gregoire, 1987).

9] A third, perhaps less common, route to mapping relations between humans and the environment in environmental psychology has been what Saegert and Winkel (1990) called "sociocultural paradigms" (p. 457). Proponents of this cultural/symbolic approach take environmental meaning to be primarily socially constructed. The environment is not seen as a *tool* but is instead what Williams and Patterson (1999) called the "cultural, historical, and geographical contexts of day-to-day life" (p. 147). Thinking of environmental meaning as a social construction makes primary the structures of human relations, the cultural arrangements that determine many aspects of our existence. Some (e.g., see Stokowski, 2002) have argued that this more clearly opens the door for examining the political manipulations, the trends and patterns of power, underlying particular environmental meanings.

10] Finally, Williams and Patterson (1999) have identified a fourth distinct body of research in environmental psychology that they label "individual/expressive meanings" (p. 148). In doing so, Williams and Patterson seek to recognize the determinative, socially constructed nature of meaning, while also leaving room for individual agency. They emphasize "individual-level processes and a recognition that individuals have the potential to assign intangible and relatively unique meaning to places and things" (p. 148). This view differs from aesthetic and instrumental meanings in that its proponents put less emphasis on the notion that meanings are inherent in abstract environmental attributes. Instead, they seek to understand environmental meaning in specific, holistic ways. Environmental meanings (in this area of research often linked to the concept of place) are imagined in terms of the way people use them to create and maintain senses of identity; Williams and Patterson have written, "The places we frequent help to communicate to ourselves and others 'who we are'" (p. 148).

Environmental Psychology: Does it Need Yet Another Research Approach?

11] Obviously, these four distinct perspectives on meaning cannot represent all approaches to understanding in environmental psychology. But they give us at least a sense—the outline and contours—of the field. I believe we can build upon this field, by, in a cross-disciplinary way, introducing a set of ideas that have not been common to environmental psychology. I would argue that this theoretical approach could enhance the way we think about meanings related to the human relationship to nature, such as wildland fire, particularly in the way I believe it helps us fill out and bridge the last two orientations discussed above—the socio/cultural and individual/expressive perspectives.

12] As a guide to the following discussion, I will utilize Patterson and Williams' (1998, 2005) framework for understanding differences in epistemological research traditions. Their thinking is based on the work of Laudan (1984), Anderson (1986), and Murray and Ozanne (1991). Patterson and Williams have imagined the basic structural constituents of scientific research traditions in terms of three levels, including: research programs, paradigms, and world views. In macrostructural terms, *research programs* are the elements that most readily come to mind when we think about substantive, on the ground, attempts to understand human relations and other phenomena. Patterson and Williams (2005) wrote that this is "where theoretical concepts are developed and empirically tested and where traditional disciplinary foundations (e.g., environmental psychology, geography) are most active" (p. 363). I think of research programs as the actual, in-the-trenches, processual elements that evolve to aid in finding/producing evidence meant to demonstrate meaning.

12.1] One could think of *paradigms* occupying the next level of abstraction. Normatively guiding practice at the research program level, research paradigms are imagined in ways that seek to account for what can be known (ontology), how one can know it (epistemology), and the appropriate target, or goals, of research (axiology). In other words, what are the assumptions behind the elements of a research program? What is the context—imagined reality, best ways of knowing, and goals in relation to which our evidence is meaningful?

12.2] Finally, at the highest level of abstraction, *world views* are intended to guide paradigms; they normatively define the rules of engagement with a phenomenal world—what it is possible to study and to understand. They deal "with broad philosophical debates about such things as the appropriate concept of validity and the nature of scientific testing logics (a logic explaining the manner in which empirical observations function as tests of theoretical concepts)" (Patterson & Williams, 2005, p. 363). Simply put, what sorts of statements about meaning can we (or should we) make?

12.3] One might imagine (and Patterson and Williams, 1998 and 2005, have) this macrostructural model in terms of a pyramid, with many identifiable research programs, topped by fewer guiding research paradigms, and that topped by fewer still world views. Ultimately, seemingly distinct research programs may share the same paradigmatic umbrella, and they in turn may fall under the same world view. This will become clearer as I describe my approach to research.

The 'Circuit of Culture': Horizontal Interpretive Power

13] I will begin by describing a research program level framework for interpretation known as the 'circuit of culture', a heuristic meant to represent human experience (see Figure 1). The circuit of culture was intended to help scholars find ways to account for and explain sometimes complex social phenomena. For instance, how do humans seem free to fashion their own meanings? Conversely, in what ways are their efforts limited by social structures? Can we identify and describe the cultural arrangements that might stand behind these apparent patterns of agency (freedom), determination (power), and the negotiations that take place between them?

14] To gain a sense of what is meant by the circuit, one must have a grasp of its parts, which overlap in meaningful ways. According to this view, human social experience is imagined in terms of five coexisting processes, or 'moments': production, representation, regulation, consumption, and identity. Briefly, the term 'production' (du Gay, 1997) signifies the social and logistical constraints that may influence the way things are institutionally produced, and how this, in turn, may control how those things (products, experiences, etc.) are interpreted by those who interact with them. For instance, think of the way utilitarian, human-centric orientations of past forest managers led to particular management strategies, such as demonizing wildland fire. 'Representation' (Hall, 1997) stands for the way particular structures and orientations of signs (symbols) and language may influence people's interpretations. Because we utilize signs and languages when we think, we may be limited by the boundaries of their potential meanings. An example: how might the Smokey Bear campaign have been different if its chief symbol had been a shifty, scavenging, cartoon-style vulture, rather than a kind-faced, gentle ursine, complete with hat, pants, suspenders, and shovel? Image matters. 'Regulation' (Thompson, 1997) stands for the effort to fix meanings in ways that seem desirable to those with the power to do so. This may include formal governmental policy enactments (such as rules requiring the suppression of all wildland fires) down to more routine social norms. Residents of wildland fire prone areas engage in regulation every time they verbally confront motorists who toss lit cigarette butts out car windows in the WUI . These three concepts (production, representation, and regulation) coincide with the sociocultural element in Saegert and Winkel's (1990) conceptualization of environmental psychology.

15] The term 'consumption' (Mackay, 1997) stands for the act of use, interpretation, or at least awareness of the other moments of the circuit: the products, representations, regulations, and identities in relation to which we live at any one time. It is here that people may unquestioningly accept a meaning as it was intended by its creators. Or, they may negotiate with it, adapting it to their needs, or reject it altogether (Hall, 1980). Returning to our Smokey Bear analogy, the way we *consume,* or decode, the message may be very different than the way its producers (encoders) hoped we would. Finally, 'identity' (or identi*ties,* see Woodward, 1997) are thought of as "social profiles" (du Gay, Hall, Janes, Mackay & Negus, 1997, p. 10), "types" (p. 15), or *stories,* snatched from the broader discourses that move through the moments of culture. Identities may be taken up and utilized to present particular versions of self, or social group, to others, or one's self. Identities are not assigned exclusively to people, but may be ascribed (exclusively *by* people, for all practical purposes) to other creatures, things, places, and experiences. I believe these cultural processes of consumption and identity coincide well with

Williams and Patterson's (1999) concept of individual/expressive meanings in environmental psychology (e.g., 'I am a person who listens to Smokey and does not start wildland fires').

16] A great potential contribution to making sense of meaning in environmental psychology is the way those promoting the circuit of culture have attempted to account for the interrelation, or *articulation,* of the five moments. They argue it is too simplistic to imagine that meaning is influenced by any one moment of cultural experience (i.e., production, representation, regulation, consumption, and identity). It is the researcher's task to identify and describe how particular meanings result from the overlap, or articulation, of cultural moments (as characterized by the arrows in Figure 1—note how every arrow indicates the potential for every moment to overlap with every other). Also, keep in mind that we do not necessarily need to think of the moments following in succession. Any moment may articulate with any other, as the situation occurs.

17] Though circuit of culturalists have not explained it exactly this way, I think of articulation in terms of shared discourses, or "semantic networks" (a circuit of culturalist term, see du Gay, 1997)—identifiable, describable, social maps, often taken-for-granted, which provide us with information and associations, saving us the trouble of having to come up with new charts for our social worlds every time we embark upon them (Foucault, 1972). One has but to express the word, or phrase, representing a particular discourse, and, if one's audience member shares enough knowledge of that discourse, s/he can think and act in terms of the same social map. It is important to think of the ways discourses, largely similar, may be shared within the minds of the participants of more than one cultural moment. For example, as noted (above), a researcher may identify a human-centric discourse in which wildland fire is considered to be 'destructive'. This discourse would undoubtedly have been common among cultural participants such as forest managers (i.e., those directly participating in the moment of production) prior to the Wilderness Act (Pyne, 1997), and members of the Advertising Council (i.e., those participating in the moment of representation), which created the Smokey Bear campaign (for more on this history see Brown & Davis, 1973, and Morrison, 1995). But perhaps just as interesting, and in some cases more important, are instances in which cultural moments *do not* share discourses (that is, do not articulate). Dominant players within one moment may operate in relation to discourses which *do not* resonate with dominant players of another moment, and vice versa. Being aware of the cultural history and arrangements behind these particular relationships may lead to understandings about how articulations between cultural moments may be created (or not, as the case may be).

18] The paradigm (Patterson & Williams, 1998, 2005) supporting the creation and maintenance of the circuit of culture is a body of ideas collectively known as 'cultural studies' (du Gay, 1997; du Gay et al., 1997; Hall, 1997; Johnson, 1986; Mackay, 1997; Taylor et al., 2002; Thompson, 1997; Woodward, 1997). Ontologically, those subscribing to the cultural studies view imagine meaning discursively. Meaning is not thought to be reflective of some deeper structure. Culture is thought to actually *constitute* social meaning; meaning is said to exist *within* culture. Therefore, epistemologically, cultural studies scholars attempt to observe meaningful cultural processes. We can think of their axiological goal being witnessing meaningful human relations. Advocates of the circuit of culture, for instance, favor collecting and interpreting elements of human experience related to processes of production, representation, regulation, consumption, and identity. For example, if one were studying the meaning of the Smokey Bear campaign, one might gather such evidence as: productive elements, such as discourse related to institutional decisions behind the campaign's implementation; evidence of representation, such as historical texts produced over the years; regulatory evidence, such as policy documents that guided the creative process, as well as evidence of more local behavioral norms apparently influenced in some way by the Smokey message; evidence of consumption, such as historical accounts of the role of the Smokey message in public life; and a sense of discourses of identity apparently taken from the Smokey campaign. Ideally, researchers would not limit themselves to identifying and describing elements of these cultural processes, but would compare them, looking for evidence of (or, lack thereof) articulation between these processes. For instance, how did the producers encode the Smokey bear message, and how was that message decoded by consumers—the public? To what extent was the intended discourse accepted, negotiated, or opposed? (Hall, 1980) And, of great importance to cultural studies scholars, what might these relationships tell us about the state of arrangements of power and cultural politics? Who wins, who loses, who stands somewhere in between, who decides, and why? (Lewis, 2002)

19] Because I see overlap at the world view level between cultural studies and my next topic, reflexivity, the world view discussion will be saved until the end of the next section. To summarize the preceding section: Thinking of human relations in terms of the extent of articulation between cultural moments in a circuit encourages us to imagine and account for experience in a broad way. Rather than focusing on a narrow sliver of experience, we can envisage a very wide *horizon* of social activity. This results in the statement that the circuit of culture provides us with *horizontal* interpretive power.

Reflexivity: Vertical Interpretive Power

20] Returning to the four distinct approaches to environmental psychology discussed earlier (Patterson and Williams, 1999; Saegert & Winkel, 1990), we can say that each share a focus on meaning. What is the source of meaning? Where does meaning come from? I argued that, in a horizontal sense, the circuit of culture helps to broaden, and perhaps complexify (in a helpful way), our imagination of meaning. In this section, I will promote the idea that perhaps we should also consider meaning in a *vertical* sense as well. I begin this discussion with what is perhaps the most difficult question of this article. Williams and Carr (1993) put it best when they asked, "'What is the meaning of meaning?'" and added, "Just phrasing it as a question is awkward" (p. 210). Again, in the last section, I made the case that imagining human relations in terms of a circuit of culture can enhance our interpretations, particularly in the way it helps us account for both social/cultural and individual expressive meanings. I see proponents of this position imagining meaning at what I would call the 'phenomenal' level—all of those human relational activities 'out there' that social scientists traditionally claim to study. But is that the only level at which we could, or should, think about meaning?

21] I would like to expand upon calls (particularly led Daniel R. Williams and colleagues) in the field of environmental psychology for what I take to be multi-dimensional representations of meaning, specifically the meaningful contribution of an interpreter. This is evident in this statement by Williams and Carr (1993): "In essence, the recreation management profession and its research agenda is a product of the cultural identities of the researchers, managers, and 'traditional' client groups" (p. 209). Six years later, Williams and Patterson (1999) encouraged researchers to be transparent about the assumptions behind their work:

> An intellectual map is a good starting point for any effort to integrate research on the human dimensions of ecosystem management. We must remember going into such exercises, however, that every map maker imposes a certain point of view, sense of order, or set of conventions in the effort to represent the world (p. 141).

And in this recent unpublished manuscript, Williams and Patterson (2007) remind that "methods are not passive instruments" (p. 2). One should never forget that they reflect the ontological/epistemological assumptions in relation to which they were conceived. "Effective critical pluralism and . . . reflective dialogue," Williams and Patterson added, is possible if researchers are careful to "articulate their concepts, methods, and assumptions in such a way that they can be differentiated from other approaches to the topic" (p. 4, also see Patterson and Williams' discussion of the "forestructure of understanding," 2002, p. 23).

22] Once again guided by Patterson and Williams' (1998, 2005) framework for understanding epistemological research traditions, I will examine this multi-dimensional approach to meaning, first from the research program perspective. This sort of practical contemporary attempt to find evidence supporting statements about meaning has roots in the 19th century 'interpretation' (also commonly called 'hermeneutics') of Friedrich Schleiermacher. Schleiermacher attempted to understand what authors of Greek classics and religious texts 'really meant' in their writings—what did those early authors *intend* to communicate? Wilhelm Dilthey, Schleiermacher's biographer, recognized that, in addition to texts, one could interpret other human activity as well (Dilthey, 1972, 1996; Littlejohn, 1996; Prus,1996). Ermarth (1978), paraphrasing Dilthey, wrote:

> Life is a thoroughly empirical reality—the human reality which all of us "live through" and constantly refer to in ordinary speech; it is the human condition itself, not a transcendental Idea. There is no reality outside or beyond life, for everything we think, perceive, or imagine is ultimately woven in our existence (p. 109).

23] Over time, scholars of hermeneutic interpretation have moved away from the belief that there is unitary meaning in the lives of people. In other words, 'Idea', 'Truth', 'Reality', whatever term one wishes to use in referencing 'meaning', depends upon one's perspective. Taylor (1987) put it best when he wrote:

> Interpretation, in the sense relevant to hermeneutics, is an attempt to make clear, to make sense of an object of study. This object must, therefore, be a text, or a text-analogue, which in some way is confused, incomplete, cloudy, seemingly contradictory--in one way or another unclear. The interpretation aims to bring to light an underlying coherence or sense (p. 33).

And we must recognize that as interpreters, we play a role in that "coherence or sense." Geertz (1973) explained that "…what we call our data are really our own constructions of other people's constructions of what they and their compatriots are up to…" (p. 9).

24] The meaningful nature of the interpretation of human relations has been an important target for those who think a lot at the research program level about 'reflexivity'. A number of attempts have been made to describe the concept (Atkinson & Coffey, 1995; Davies, 1999; Dupuis, 1999; Hopper, 1995; McGee and Warms, 1996; Myerhoff & Ruby, 1982; Phillips, 2001; Van Maanan, 1988), including this succinct definition:

> The capacity of any system of signification to turnback upon itself, to make itself its own object by referring to itself: subject and object fuse… Reflexive knowledge, then contains not only messages, but also information as to how it came into being, the process by which it was obtained (Myerhoff & Ruby, 1982, p. 2, quoted in Dupuis, 1999, p. 59).

More simply put, reflexivity is the act of recognizing the processual, developmental nature of meaning.

25] Though, as we will see, commonly associated with postmodern and poststructural approaches to knowledge (Davies, 1999; McGee and Warms, 1996), reflexivity has deep roots in the human sciences. One distinct recognition of the concept can be found in positivist social scientific methods which require researchers to engage in careful strategies to bracket off their reflexivity. Rather than being the first step toward any sort of disclosure—an attempt to help the reader understand how the researcher's ontological/epistemological presence played a role in the interpretations emerging from the study—the goal here is 'objectivity'—preserving the setting and subjects in their 'natural state', 'uncontaminated' by outside stimuli.

26] A second manifestation of reflexivity in the human sciences has involved an awareness of the 'social reflexivity' of those studied. This has long been the aim of anthropologists in their studies of ritual and performance as they wonder how these social activities help people reflect on their own lived experiences—what do these activities *mean* according to the terms of the people studied? Again, researcher disclosure is not the objective. This sort of research has been criticized for preserving "a privileged, and essentially non-reflexive, position for the ethnographer" (Davies, 1999, p.8).

27] A third identifiable area of reflexivity—the sort of researcher reflexivity Davies' criticism seems to support—is actually not a new development in the human sciences. We can detect this essence of reflexivity in Cooley's (1926) sociological work when he called for 'sympathetic introspection' in research. Dupuis (1999) summarized Cooley's approach, "In order to understand other's experiences, we as researchers had to sympathetically ascribe our own emotions and experiences in the situation to those we were studying" (p. 51). Despite this early awareness, it was not until much later in the century, spurred on by the 'rediscovery of rhetoric' in communication studies (Atkinson & Coffey, 1995)—the idea that knowledge is socially produced—that the recognition of reflexivity truly made its mark in the field of anthropology, and, less significantly, sociology. Questions arose, especially among ethnographers, about the practice of making knowledge statements about others without first revealing the particular perspectives from which those claims had been made. Gruenberg (1978) concluded, "any statement which holds that humans necessarily act or believe in particular ways under particular circumstances refers as much to the social scientist as to anyone else" (p. 322).

28] Over time, as one might expect, a preoccupation developed with the way reflexivity foregrounded an undergirding sense of relativism. In this fourth distinct style of reflexivity, some celebrated, others feared, the possibility of a post-modern/poststructural nihilism which threatened to challenge any meaningful knowledge claims in the human sciences (Davies, 1999; McGee & Warms, 1996). If, as Gruenberg (1978) stated, it is as much about us as them, then who (other than perhaps our mothers), will care about what we are reporting in our research? Indeed, Denzin (1997) warned, "Endless self-reflections and self-referential criticisms will produce few texts anchored in the worlds of concrete human experience" (p. xv).

29] If I were saying that the practice of meaning is exclusively the researcher's, then we might truly be open to charges of a debilitating relativism. But this is not the point of developing this call for vertical depth in our research. In his seminal book on ethnographic practice, Van Maanen (1988) argued that we must account for the research subject, the researcher, *and* the audience of the final report. He indicated that cultural experience is possible at all three levels. "Ethnographies are documents that pose questions at the margins between two cultures," Van Maanen wrote. "They necessarily decode one culture while recoding it for another" (p. 4). Morley (1992) argued that there has been a tendency to ignore the culture (meaning making) of the audience for academic reports. Some influential researchers have "been content to deduce audience responses from the structure of the text," (p. 59, quoted in Hopper, 1995, p. 66). Latour (1988) argued that "readers seem to be much more devious, harder to take in, much cleverer in deconstruction, much faster in fiction-making than is assumed by those writers who, with some arrogance, believe (they know what) others believe" (p. 168, quoted in Hopper, 1995, pp. 65-66).

30] At the paradigmatic level, this reflexive research program draws primarily from sociology, anthropology, and communication studies, particularly those ends of these fields promoting a discursive ontology. As Hoover (1995) wrote, "Whereas it was once commonplace for theorists to see speech and action as being merely reflective of more fundamental or deeper structures, norms and values, we now see speech and action as constitutive of social reality" (p. 139). What is more, in addition to recognizing the contribution to meaning of the "speech and action" of individuals and groups at the *phenomenal* level of experience (again, the experience we generally think about when we claim to be studying human relations), this reflexive orientation has evolved to account for the contribution of *researcher* and *report audience* to meaning as well. Epistemologically the best way to know usually involves dialogically interacting with people involved within the processes we wish to study, paying attention to the ways they create and maintain their meanings about these processes while also trying to account for the meanings we make as researchers. Our axiological goal should be presenting a reasoned argument, recognizing finally, that our audiences will also create and maintain meaning as they interact with our reports.

31] Finally, at the world view level (Patterson and Williams' [1998, 2005] highest level of abstraction, skipped over in the circuit of culture discussion and saved until now), we see how the brands of cultural studies, sociology, anthropology, and communication studies presented here fall under the same rubric. On one hand, these approaches to understanding eschew the claims of validity and reliability that are the hallmark of positivist and postpositivist social science (Neuman, 2003). But on the other hand, these approaches also avoid the 'anything goes' assumptions of more extreme forms of relativism (Feyerabend, 1975). Meaning, according to the logic promoted here, is lodged in the social. Although cultural structures may appear to be, and for all practical purposes *are,* permanent (sometimes for many centuries!), they are always subject to change. Therefore, the meanings resulting from these cultural arrangements cannot be inviolate. Notions of validity and reliability are always contingent upon the human relations within which they were imagined (Foucault, 1972).

Modeling 'Three Levels of the Circuit of Culture'

32] Now that I have argued for enhancing our approach to understanding human relations by imagining meaning in a more broadly horizontal and more deeply vertical way, what can we do with it? I would argue that first we need a clear model. Figure 2 represents what I have imagined to be three co-existing levels of meaning. Basically, the circuit of culture model has been tilted back, simplified somewhat (i.e., fewer arrows, but the intent is the same—the arrows are meant to signify potential articulation between any element [or elements]), and then replicated and stacked so there are now three levels of meaning—hence the name, 'Three Levels of the Circuit of Culture'. Level 1 is meant to represent the 'phenomenal' level. As discussed, this is the level social scientists generally imagine when they perform their research—the observable productions, representations, regulations, consumptions, and identities of lived human experience. Level 2 (the 'researcher' level) and Level 3 (the 'report audience' level) are meant to represent the addition of a *vertical* dimension to the circuit of culture. For instance, is there anything we can, and should, say about the researcher's relationship to, and interpretation of, these cultural elements at level 2? What of the productions, representations, regulations, consumptions, and identities observable in the *researcher's* world? How might the articulation—the relationship—of these moments in the researcher's own experience be a factor in his or her interpretations? Should we share anything about that? How might we present this information? And, should we think in some way about the articulation of the same elements in the experience of the *audience* for the researcher's report (Level 3)? And finally, how might cultural moments from one level interact—perhaps *articulate*—with those of another (as represented by arrows connecting the three levels)?

Applying Three Levels of the Circuit of Culture

33] For reasons related to the pursuit of understanding and the practicalities of contemporary social/human research, it can be helpful to utilize a heuristic such as the three levels of the circuit of culture. For instance, Curtin and Gaither (2005, 2006, 2007), a pair of communication researchers who have focused on the topic of public relations, have utilized the moments of the circuit of culture to break their research and reporting into stages. First they laid out their theoretical orientation (2005), followed closely by the presentation of a practical public relations problem in terms of a case study targeting the moment of identity (2006). In their 2006 article, they reported on the investigation of the discursive way identity played a role in an international public relations campaign—the World Health Organization's (WHO's) effort to end smallpox. As they explain, it is only one stage of an ambitious effort:

> This study is a part of a much larger work examining WHO's campaign to eradicate smallpox through the lens of the entire circuit of culture. That study demonstrates the relations among moments, including the regulatory factors that shaped the campaign, the constraints and ideology that informed production, how the target publics made sense of the campaign in their lives, and how meaning was negotiated throughout the continuing process of representation (Curtin & Gaither, 2006, p. 70).

One could present such a study in stages (i.e., one moment per article or chapter), as Curtin and Gaither are doing, or in its entirety in a larger book or report form. In my own work, this critical essay serves as an introductory theoretical discussion. Next, I will join co-authors in analyzing and writing about the articulation of production and consumption practices in relation to communication about wildland fire in the Rocky Mountain West. I am also involved in three other related studies, the first is focused on the expressed identities of people living and recreating in wildland fire zones. In another study I am researching representation by collecting and analyzing journalistic texts about wildland fire and related issues, such as mitigation. And in the final study, which will complete the circuit of culture, I will examine the way formal and informal regulation has played a role in the meaning of wildland fire over time. As I have said, considering one moment means thinking about the other four. With each study, I hope the growing body of knowledge will be greater than the sum of its individual parts.

34] While broadening our imagination of horizontal cultural experience may make sense, some may find it more difficult to express the *vertical* experience, as represented by the three levels. The question of course is how much to share. This is the point where critics bemoan the turn toward full-blown autoethnography, which combines observed information about human lived experience with a great deal of self-disclosure on the part of the researcher (for examples and discussion of this concept, see Crapanzano, 1980; Etherington, 2004; Reed-Danahay, 1997; and Rosaldo, 1996). Obviously, one needs to strike a reasonable balance. After all, the audience member will come to my reports on research related to the contemporary western human experience with wildland fire mostly interested in learning more about wildland fire, rather than the life, times, and poetry of a cultural studies scholar. But still, by sharing something about the moments of *my* cultural experiences, how those processes articulate, it increases the possibility that the audience for my report will experience an enhanced, multi-dimensional interpretation. And that leads us to a very important point. We must also always be cognizant of the existence of a third level of meaningful activity—that of the audience members for our reports.

35] The question remains: how much to share at Level 2. Ideally, the audience for our reports would be there for the creation and execution of the study. They would help in the interpretive process. They would get to know the researchers, and we, them. That would obviously be untenable. Taking it from another direction, perhaps we already have enough Level 2 information. For instance, I can attend conferences in which scholars such as Curtin and Gaither are presenting papers, I can read their report papers online, and I can read their articles in academic journals. By way of electronic databases and Internet search engines I can gather information about their academic positions, the courses they teach, even what they look like! But with an increasing number of research topics and fields every year it may be difficult to attend enough conferences to keep up with more than a few fellow researchers. Online information may be incomplete. Topic areas, ontologies, and methodological orientations may change over time. Why not share something about one's current cultural orientation in every report, even if that means referencing a prior (easily retrieved) report that lays out this information? I do not believe it would be necessary, interesting, or realistic to present equal amounts of information at all three levels. I like to think of it as a pyramid with information from Level 1 occupying the largest portion at the base, Level 2 information would be represented by a much smaller section in the center, and Level 3 would be represented by a very small zone in the apex, a tipping of the hat to the existence of this level of cultural activity.

36] My intention in thinking about and writing this article has not been to force a radical change in our approach to environmental psychology. Those sorts of changes have been underway for at least the last 20 years. Rather, it is meant as an augmentation (or enhancement) to the field, particularly in terms of a bridge between developing socio/cultural and individual/expressive perspectives. I believe that to address some of the complex issues—the so-called 'wicked problems' we have associated with our developing interconnection with the natural world—we can find assistance outside the usual places. I have attempted to do this by associating thinking in the study of natural resources, sociology, anthropology, communication, and cultural studies. This effort has resulted in a heuristic I have called 'Three Levels of the Circuit of Culture'. More than simply helping us in our efforts to make sense of such issues as the contemporary western human relationship to wildland fire, I ultimately believe this metaphor will make it possible to imagine meanings bound up with the evolving human relationship with nature in general. The framework presented here needs further development. But if it moves us down the path of thinking more horizontally and vertically about the human/nature connection, I believe we will have another powerful tool in our quest for meaning.

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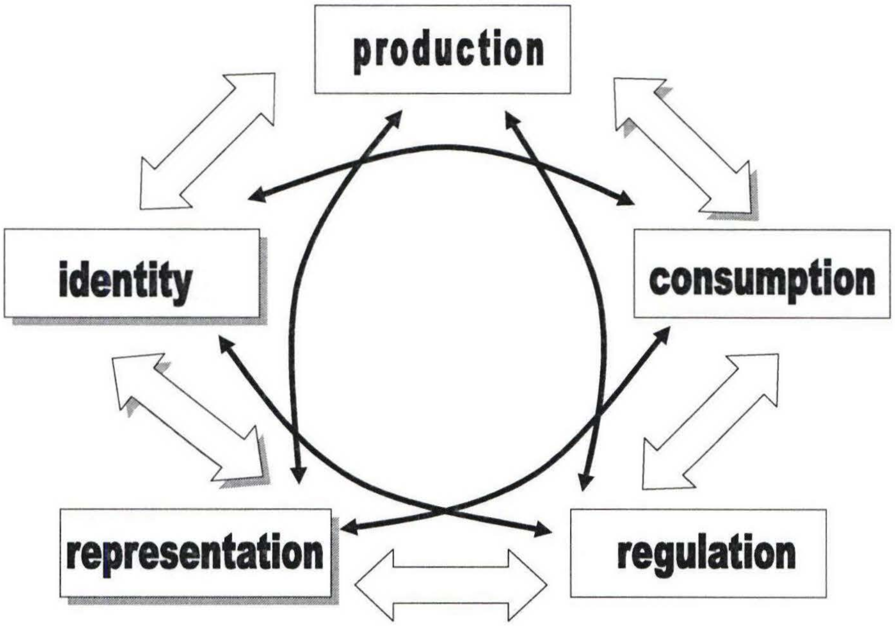
production
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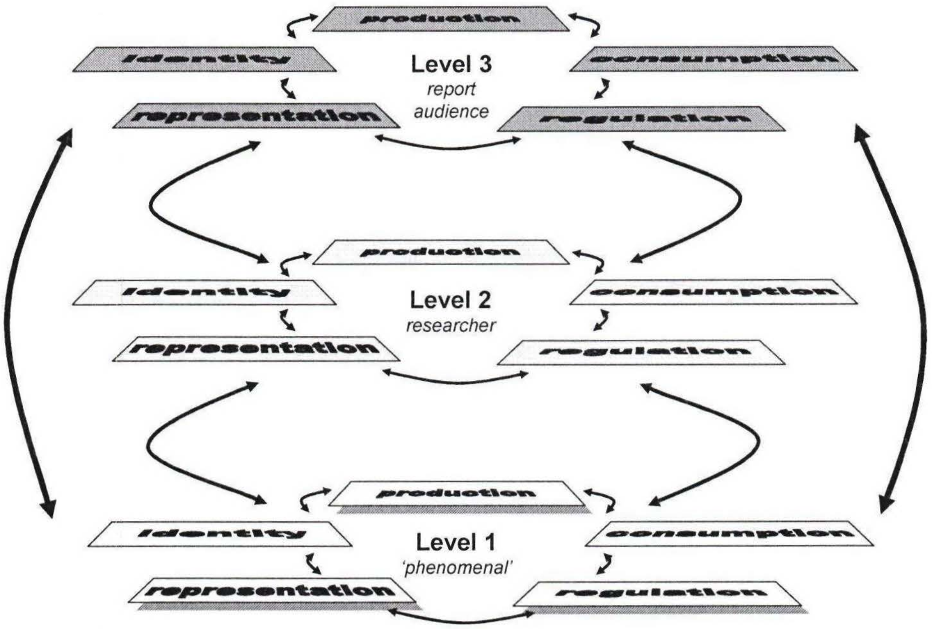
Figure 1, 'The Circuit of Culture' (du Gay, 1997)


production
identity
Level 3
report
audience
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representation
regulation
production
identity
Level 2
researcher
consumption
representation
regulation
production
identity
Level 1
'phenomenal'
consumption
representation
regulation

Figure 2, 'Three Levels of the Circuit of Culture'